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NATIONAL CANCER INSTITUTE

ANNUAL REPORT

July 1, 1975 through June 30, 1976

Part I

OFFICE OF THE DIRECTOR

U.S. NATIONAL CANCER INSTITUTE
" Report of program activities.
ANNUAL REPORT

July 1, 1975 through June 30, 1976

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NATIONAL CANCER INSTITUTE

ANNUAL REPORT

Introduction

The organization of the National Cancer Institute continued to be dynamic and adaptable in the face of increased responsibilities during Fiscal Year 1976. Major changes were made in several of its program divisions. The most significant were:

A complete realignment of the Division of Research Resources and Centers, involving transfer to the Division of Cancer Treatment of responsibility for the Clinical Cooperative Groups, -- the NCP nationwide effort for conducting trials of new methods for treating cancer patients -- as well as organization of the bulk of NCI's grant supported activities into three major program areas called Biological Research Program, Training and Education Program and Centers and Treatment Program.

The NCI initiated use of the Cancer Research Emphasis Grant (CREG). This funding mechanism enables the NCI Divisions to identify programs and projects on which research is urgently needed and on which the creative assistance of prospective grantees is desired. This mechanism is expected to enable a mixture between Institute directed management, and investigator initiated performance heretofore inadequately available.

Actions were taken affecting improvement in the management of two NCP/NCI facilities: the NCI management of the Frederick Cancer Research Center was transferred from the Division of Cancer Cause and Prevention to the Office of the Director. This move is expected to enhance coordination of the use of this outstanding national resource by all of NCI research programs. In addition, the Baltimore Cancer Research Center moved into new facilities at the University of Maryland Medical School which hosts this important program for the National Cancer Institute.

The Institute's efforts in identification of environmental carcinogens were significantly improved during FY-1976. The most visible manifestation of this was the creation during the last quarter of a Clearinghouse on Environmental Carcinogens, made up of experts from government, industry and academia, designed to improve the quality and quantity of bioassays of potential chemical carcinogens. Additionally, the DCCP epidemiology program was restructured by creating an Environmental Epidemiology Branch and a Clinical Epidemiology Branch. These changes were initiated to give added support to the Environmental Carcinogenesis Program. A major significant achievement of the NCI during the fiscal year was publication of a county-by-county atlas of cancer mortality covering the entire nation.

Major portions of the Biology Branch, DCCP were transferred to the Division of Cancer Biology and Diagnosis in order to consolidate under unified management closely related intramural research in immunochemistry, cellular immunity and tumor antigens.

Internal rearrangements were made in the Division of Cancer Control and Rehabilitation clarifying and strengthening the organizational structure of the newest NCI division. Major features include the creation of the Intervention Program and the Community Program. Previously existing branches were realigned into these two new programs.

There was established in the Division of Cancer Treatment a new Laboratory of Medicinal Chemistry and Biology within the Drug Research and Development Program, and realignments of radiation and surgery programs in DCT followed upon movement from DCBD last year of new responsibilities in these areas.

Within the Office of the Director the Office of International Activities was formally established, encompassing bilateral activities with Russia and Japan along with management of the International Cancer Research Data Bank Program.

Staff Changes, Activities, Honors and Awards

Dr. Albert F. New was appointed Director of Animal Care

Mr. Paul Van Nevel was appointed Director, Office of Cancer Communications, OD

Mr. Robert Namovicz was appointed Chief, Management Policy Branch

Mr. Richard L. Sherbert, Jr., was appointed Deputy Executive Officer, NCI

Dr. Joseph F. Fraumeni, Jr., was appointed Chief, Environmental Epidemiology FS&S, DCCP

Dr. John M. Miller was appointed Chief, Clinical Epidemiology Branch

Dr. Jane Taylor was appointed Chief, Breast Cancer Branch, DCBD

Dr. Franco Muggia was appointed Director, Cancer Therapy Evaluation Program, DCT

Dr. John Minna was appointed Chief, Clinical Oncology Program, DCT

Dr. David Johns was appointed Chief, Drug Research & Development, Laboratory of Medicinal Chemistry, DCT

DHEW Superior Service Award

Dr. Gio B. Gori, Deputy Director, DCCP

Dr. Richard H. Adamson, Chief, Lab of Chemical Pharmacology, DCT

PHS Special Recognition Award

Dr. Abraham Cantarow, Research Planning Officer, OD

Dr. Thomas J. Mason, Statistician, DCCP

Mr. Frank W. McKay Jr., Computer Specialist, DCCP

Dr. Max H. Myers, Head, End Results Section, DCCP

Dr. David Byar, Medical Research Officer, DCCP

Meritorious Service Medal

Dr. Joseph F. Fraumeni Jr., Medical Director, DCCP

Commendation Medal

Mr. Jean-Paul Davignon, Head, Clinical Drug Distribution Section, DCT

Commendation Medal - cont'd

Dr. Robert N. Hoover, Head, Environmental Studies Section, DCCP

Dr. Ronald Herberman, Chief, Laboratory of Immunodiagnosis, DCBD

Dr. Bruce A. Chabner, Assistant Chief, Laboratory of Chemical Pharmacology and Head, Biochemical Pharmacology Section, Laboratory of Chemical Pharmacology, DCT

Dr. James E. Hamner, Director for Intervention Programs, DCCR

Mr. Joseph Scotto, Biostatistician, DCCP

Dr. Harmar D. Brereton, Head, Radiation Medicine Section, Radiation Oncology Branch, DCT

Dr. Robert Depue, Assistant to the Director, DCCP

NIH Director's Award

Dr. Tibor Borsos, Research Chemist, DCCP

Dr. Margaret Edwards, Medical Officer, General Administration, DCRRC

Dr. Pietro Gullino, Chief, Laboratory of Pathophysiology, DCBD

Dr. Irwin Plough, Associate Director for Program Planning, DCBD

Other Honors and Awards

Authur S. Flemming

Dr. Edward M. Scolnick, Medical Officer, DCCP

America's Ten Outstanding Young Men Award for 1976

Dr. Richard A. Knazek, Senior Surgeon, DCBD

Program Activities Report
Fiscal Year 1975-76
Editorial Office of the National Cancer Institute

The Board of Editors reviewed 1,832 items for publication in various journals. Those not destined for the Journal of the National Cancer Institute constituted 690 manuscripts and 249 abstracts.

Of 893 manuscripts submitted for publication in the Journal of the National Cancer Institute, 85 were by NCI authors: 56 accepted, 7 rejected, and 22 pending. Authors from other research institutions submitted 808: 350 accepted, 241 rejected, and 217 pending or withdrawn by author. Of these, 252 were received from other countries: Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Czechoslovakia, Denmark, England, Federal Republic of Germany, France, India, Ireland, Italy, Israel, Japan, New Zealand, Nigeria, Norway, Poland, Russia, Scotland, Singapore, South Africa, Spain, Sweden, Switzerland, The Netherlands, Turkey, Uganda, Wales, and Yugoslavia.

Volumes 54 and 55 of the JNCI totaled 3021 pages. Beginning with Volume 55 No. 1, the size of the Journal was increased from 7-1/2 X 10 inches to 8-1/2 X 11 inches. The printing and binding were contracted out through the Government Printing Office to the McFarland Company, Harrisburg, Pennsylvania. The first copy produced by them was the June 1975 issue.

NCI Monograph No. 41 (Third National Cancer Survey: Incidence Data) was delivered in August 1975. This was the first NCI monograph to be printed on the Linotron at GPO, and it contains 450 pages. Copies of Monograph No. 42 (Symposium on Ovarian Cancer) were received in March 1976; this monograph has 192 pages.

Four monographs are currently in press. Advances in Neuroblastoma Research will be printed in the August or September 1976 issue of the Journal; it will contain approximately 115 pages. No. 43 (Symposium on Pneumocystis carinii Infection) and No. 44 (Symposium on Spontaneous Regression of Cancer) are in galley stage, and publication is anticipated for October or November 1976. Estimated pages for these monographs are 220 and 148, respectively.

Edited copy for the United States-Union of Soviet Socialist Republics Joint Monograph on Drug Development (unnumbered; final title to be decided) is currently being prepared and will be sent to the printer no later than June 1; the approximate number of printed pages is 300. Editing of this monograph and Advances in Neuroblastoma Research has been done under contract, partially relieving staff members for work on the rising flood of papers for publication in JNCI.

INTERNATIONAL ACTIVITIES
OF THE
NATIONAL CANCER INSTITUTE

Cancer and its dire physical consequences in the human being, as well as its impact on his economic and other resources, continue to engender increasing international concern. Discussions of cancer and its effect on the world's population are no longer limited to the laboratory, the clinic, the local scientific meeting or the international cancer congress. The threat of cancer has transcended to a stage of continuing confrontation with governmental officials and bodies. For instance, in the United States, the magnitude of the problem was viewed with an apprehension that provided the impetus for the passage of the National Cancer Act of 1971 (amended and extended in 1974). Shortly thereafter, the United States entered into an Agreement with the Soviet Union (23 May 1972) wherein the Soviet Government openly acknowledged that cancer was one of its major health problems. In 1973 the 26th World Health Assembly adopted a resolution calling for the development of a long-term program of international cooperation in cancer research. Each of these actions is exemplary of the acknowledgement of the profound nature of the cancer problem and the need for international mobilization in the battle against the disease.

The relationship which the NCI has established, during the past few years, with international institutions and organizations certainly has been mutually beneficial because programs of international cooperation provide opportunities to broaden our understanding of cancer cause and cancer prevention. We are learning more about the world's geographic, environmental and social variations and their significance in different incidence rates and occurrence of different types of cancer. We are gaining in our understanding of cancer and its processes by increasing our knowledge of the fundamental biology of the cell, a scientific research objective of international dimension and proportion. Because of cooperative studies with scientists outside the United States, our methods of treating cancer are constantly improving. We are no longer "locked into" a single treatment modality such as surgery or radiation therapy because of the advances being made in chemotherapy and immunotherapy. Beneficial effects of combined modalities in cancer treatment are being acknowledged in increasing proportions. Inroads are being made into more effective rapid identification of the major causative factors and improved educational programs.

Thus, in implementing NCI's programmatic goals at the international level, the Office of International Affairs during FY 1976 maintained its effort in developing a cohesive method of utilizing national and international expertise for a cooperative attack on this universal health problem. A major approach in this direction has been the attempt to accumulate the available data on cancer problems, to analyze the information, and to disseminate it throughout the world as a data base for developing a comprehensive international program of collaborative cancer research. Convinced that this objective can be achieved through international cooperation, NCI's approach has been mediated by: (1) The International Cancer Research Data Bank Program; (2) formal and informal Bilateral Agreements; and (3) Collaborative Research Activities with Foreign Scientists and Institutions.

THE INTERNATIONAL CANCER RESEARCH DATA BANK (ICRDB) PROGRAM

The ICRDB Program has been developed in response to the mandate with in the National Cancer Act of 1971. Its operations effort is dedicated to active promotion and facilitation of an exchange of information among cancer scientists and the dissemination of information through cancer centers and appropriate organizations to physicians for the care of the cancer patient, Figure 1.

A computerized information retrieval system called "CANCERLINE", Figure 2, has been developed containing more than 50,000 abstracts of published papers dealing with cancer therapy and carcinogenesis. Abstracts dealing with any specific topic can easily be retrieved by using computer terminals linked to the computer network of the National Library of Medicine (NLM) at more than 500 locations throughout the United States. Terminals are also located in nine countries outside the United States, Figure 3.

An initial step in the operations is accomplished by the rapid screening of about 850 journals and proceedings of scientific meetings to identify those documents related to cancer. This is followed by the preparation of approximately 12,000 abstracts per year from these documents. These abstracts, along with 8,300 abstracts prepared for the cancer therapy and carcinogenesis programs, result in a growth rate of over 20,000 abstracts per year for the CANCERLINE data base.

An interagency agreement implemented during 1975 with the Smithsonian Science Information Exchange (SSIE) established a Current Cancer Research Project Analysis Center (CCRESPAC), Figure 2. This Center has collected and processed more than 10,000 brief descriptions of ongoing cancer research projects which are available for on-line searching through CANCERPROJ another data base available through NLM. The CCRESPAC will produce, ultimately, some 40 Special Listings of current research projects in specific narrow subject areas. Each of these Special Listings will be distributed to scientists working in such limited subject areas so that they can easily identify and establish direct communications with other scientists working in the same area.

Three Cancer Information Dissemination and Analysis Centers (CIDACs) have been established, Figure 2. Their objective is the active dissemination of cancer research information to scientists. One of the CIDAC efforts is a current awareness service to provide to investigators a steady stream of the most recent abstracts in specific subject areas. Technical Bulletins will be produced by CIDACs. A given Bulletin will contain only abstracts covering a specific research area. These abstracts will be obtained initially by searching the complete CANCERLINE and CANCERPROJ data bases. Future Bulletins on the same specific research area will contain only those abstracts added to the data base since the publication of the initial Bulletin.

Initial steps toward the improvement of methods for handling clinical cancer data have been taken by the ICRDB Program. This includes support of meetings among cancer centers in the United States which has resulted in the development of plans for establishing a common clinical cancer data base. Action is being taken to establish a Statistical Analysis and Quality Control Center (SAQC) which will serve as the cornerstone of this Centralized Cancer Patient Data System (CCPDS).

Internationally, a number of projects are contributing to the domestic core of the ICRDB Program.

An International Cancer Epidemiology Clearinghouse is a cooperative ongoing project supported jointly by the ICRDB Program, the International Agency for Research on Cancer (IARC) in Lyon, France, and the German Cancer Research Center in Heidelberg, Germany. This Clearinghouse is gathering, processing, and disseminating detailed data on research pertaining to cancer epidemiology and related studies of human cancer causation in countries around the world.

A project for improved classification for coding clinical cancer data is in effect with the World Health Organization (WHO) to support development of a method for coding clinical information about cancer called the International Classification of Diseases for Oncology (ICD-O). This coding method is currently undergoing field trials.

By contractual agreement with the International Union Against Cancer (UICC), the ICRDB Program jointly sponsors an International Scientist-to-Scientist Information Exchange Program. There are two major elements in this program--the International Cancer Research Technology Transfer (ICRETT) project and the International Cancer Research Workshop (ICREW) project. The mission of ICRETT is to promote direct and rapid transfer of information about new or improved technology or methodology between two or more investigators located in two different countries who are working in areas of basic, clinical or behavioral research. ICREW has been established to increase the frequency, speed and efficiency of direct information exchange between small groups of cancer investigators (usually 10 to 12) who are active in the same cancer-related research, but in different countries.

The International Union Against Cancer (UICC) in Geneva, by means of an ICRDB Program contract, supports the activities of a special Committee for International Collaborative Activities (CICA) which promotes international collaboration between cancer research organizations. The Executive Secretary and members of CICA are aiding the ICRDB Program in the collection of data about ongoing cancer research projects (including clinical protocols) from countries outside the U.S.A. A directory containing basic data about cancer centers throughout the world is being developed.

The International Tumor Immunotherapy Registry, Figure 2, is another ongoing project supported by the ICRDB Program. This project consists of collecting, analyzing, and disseminating listings containing more than 220 clinical tumor immunotherapy protocols.

A planning meeting was held during November 1975 in Sao Paulo, Brazil Figure 2., to initiate the establishment of a center for the collection, analysis and dissemination of cancer-related data in Latin America. The Pan American Health Organization (PAHO) is utilizing the services of its Regional Library of Medicine in Sao Paulo to establish this center for rapid screening of biomedical literature from Latin America. PAHO is acting as the focal point for updating the Latin American entries for the UICC directory of cancer centers. PAHO is collecting data about ongoing cancer-related research projects in Latin America and to date summaries have been received for about 58 current research projects in five Latin American countries.

Discussions were held which will lead to the development of an ICRDB-sponsored center in Japan, Figure 2. This Center will coordinate the collection and anlaysis of cancer-related information from Japan and neighboring countries for entry into the data bank. It will include mechanisms for providing ICRDB publications and other information services to scientists working in this area.

Negotiations are in process with the World Health Organization (WHO) to provide ICRDB publications and services to cancer researchers in developing countries. WHO has the best capabilities, as well, for screening certain types of information for entry into the ICRDB Program from developing countries.

The foregoing exemplifies the systematic and meticulous implementation of the operations required for the integration of the variety of scientific information systems which are essential to the missions of the ICRDB Program as mandated in the National Cancer Act of 1971 (1974).

Interagency Agreement: Smithsonian Institution (SI)

Title: Establish and Operate a Current Cancer Research Project Analysis Center (CCRESPAC)

Contractor's Project Director: David Hersey, Ph.D.

Project Officer: Richard H. Amacher

Objective:

The overall objective of this Agreement is for the Smithsonian Institution to establish a Current Cancer Research Project Analysis Center (CCRESPAC) to support the International Cancer Research Data Bank (ICRDB) Program by processing research project descriptions specifying who is doing the research, where it is being done and what approach is being used.

Major Accomplishments:

- Prepared pilot file of approximately 400 cancer treatment protocols for on-line retrieval similar to CANCERLINE, part of the NLM MEDLARS computer system.

- Prepared 15 publications of various subsets of this protocol file for the NCI staff and clinicians working under NCI grants or contracts.

- Prepared for publication 5 Special Listings consisting of edited resumes of ongoing research in specific cancer subject areas.

- Identified 35 other cancer subject areas as potential topics for future Special Listings.

- Devised a detailed cancer-related thesaurus which was used to key over 10,000 research resumes.

- Prepared a computer file of over 10,000 cancer projects called CANCERPROJ which is now available for on-line searching and retrieval via the NLM MEDLARS computer system.

- Continued correspondence and other communications with scientists and clinicians in several countries. This has resulted in the identification of over 900 research projects previously unknown to the CCRESPAC information system.

Significance to the National Cancer Program:

In consonance with the National Cancer Act of 1971, this interagency agreement has given the ICRDB Program the cost savings benefit of using an existing organization with capabilities to collect, process, and disseminate ongoing cancer research project information to researchers anywhere. Support of this Center will result in several products and services including the dissemination of specialized cancer catalogs and the on-line searching of current cancer researc project information.

Proposed Course:

Plans call for the continuation of this Agreement through December 30, 1977.

Date Agreement Initiated: December 30, 1974

Current Agreement Level: $424,109

Interagency Agreement: National Library of Medicine (NLM)

Title: Establish and Operate an On-Line Cancer Information System CANCERLINE

Contractor's Project Director: Dr. Henry M. Kissman

Project Director: Dr. John H. Schneider

Objective:

The objective of this agreement is for the placement of cancer-related information (abstracts, citations, project descriptions, etc.) into data bases generated, maintained and operated on the NLM's computer systems, and for the dissemination of the data so placed to institutions via the NLM telecommunications network or via direct mailing of necessary tapes.

Major Accomplishments:

A data base called CANCERLINE has been created from data supplied by the ICRDB Program. This data base currently contains more than 50,000 abstracts describing the results of research in all fields of cancer.

CANCERLINE has been periodically updated and arrangements have been made to enter approximately 1,500 to 2,000 new abstracts to the data base each month.

The entire CANCERLINE Data Base is regenerated at least once each year so that errors and inconsistencies in the content and format of the data are corrected.

A data base called CANCERPROJ has been created from data supplied by the ICRDB Program. This data base currently contains more than 10,000 descriptions of current cancer research projects. This data base is completely regenerated using new data from the ICRDB Program four times each year.

An experimental data base called CLINPROT has been created from data supplied by the ICRDB Program. This data base currently contains approximately 550 descriptions of clinical protocols in a special format describing the type of cancer being treated, the agents used, and outlining the protocol.

Users of the NLM system are given instruction on the use of ICRDB data bases as part of the standard user training courses given by NLM.

NLM, in cooperation with the ICRDB Program, prepares user manuals and periodic technical bulletins for users describing the ICRDB data bases.

NLM provides NCI with basic statistics regarding the use of ICRDB data bases.

NLM provides a work station and back-up services for an NCI staff person who is assigned to the NLM.

NLM provides NCI staff and NCI contractors with a number of free access codes which permit them to search ICRDB data bases without the usual search charges.

Significance to the National Cancer Program:

In consonance with the National Cancer Act of 1971, this interagency agreement has given the ICRDB Program the cost savings benefit of using an existing organization with capabilities to reformat, process, and make the results of cancer research available to more than 500 locations throughout the world via an existing telecommunications network resident at NLM. These locations include medical schools, medical research institutions, regional medical libraries and hospitals throughout the United States, and in several countries outside the U.S.

Proposed Course: Plans call for the continuation of this agreement through June 30, 1976

Date Agreement Initiated: July 1, 1974

Current Agreement Level: $ 350,000

FIGURE 1: Schematic of flow of research information from the laboratory to the application to the patient via the

INTERNATIONAL CANCER RESEARCH DATA BANK

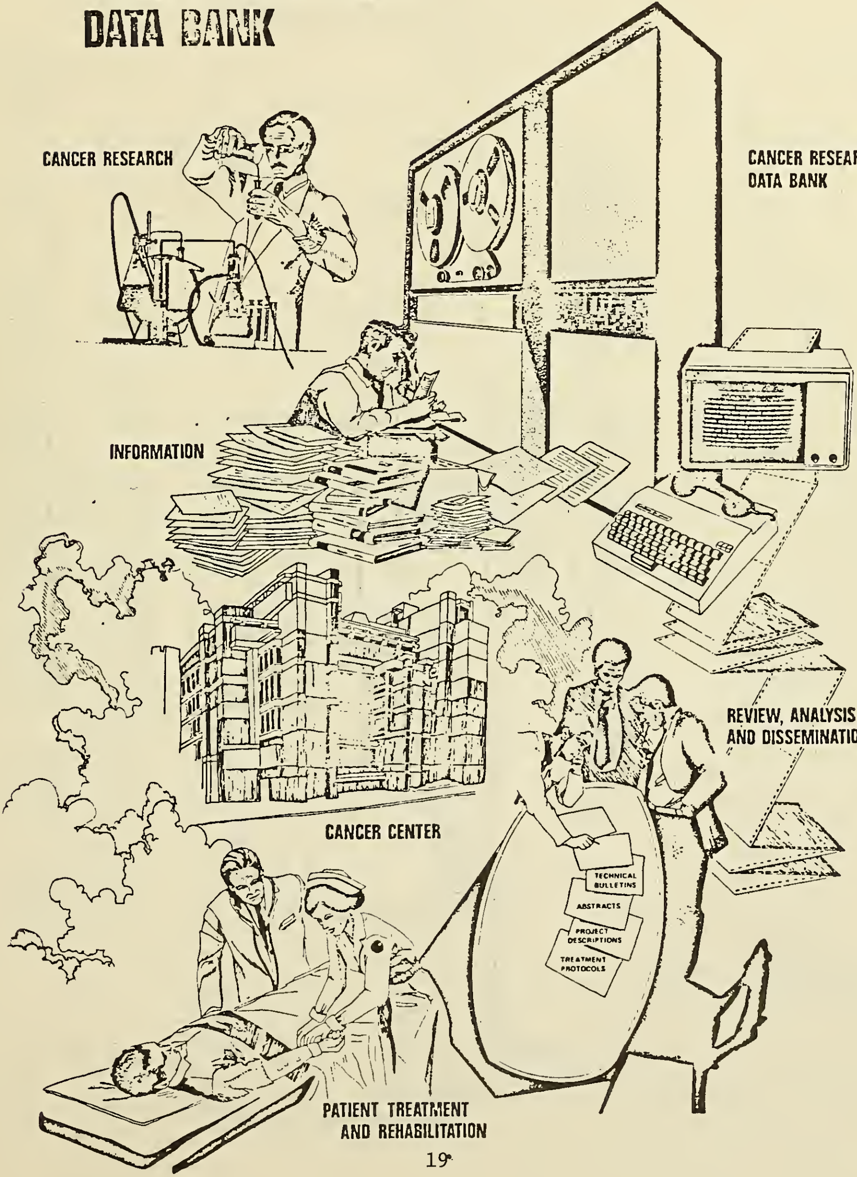


FIGURE 2: Projects and functional elements of the ICRDB Program

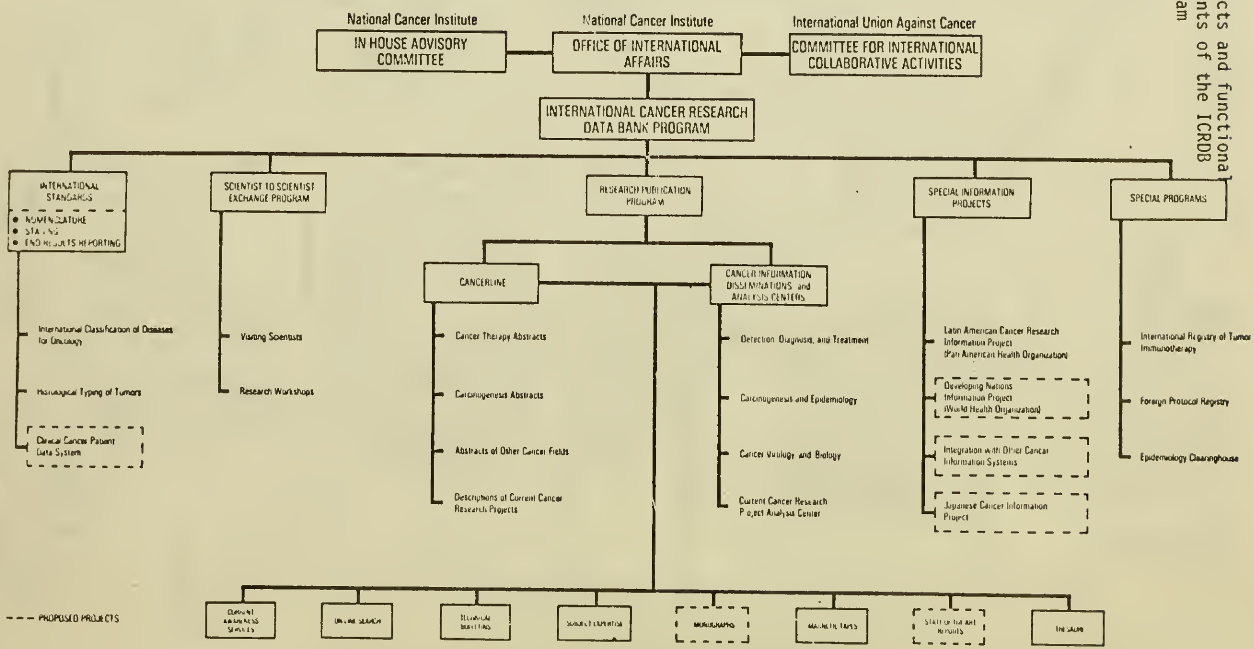
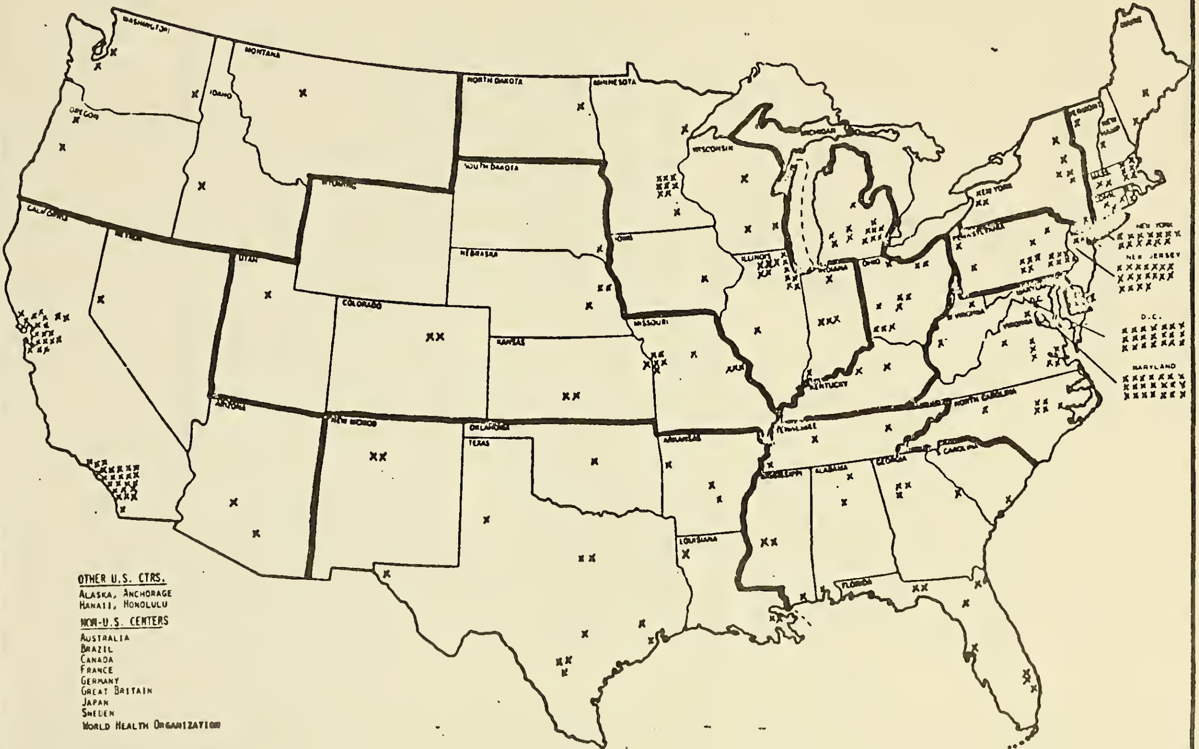

National Cancer Institute
IN HOUSE ADVISORY COMMITTEE
National Cancer Institute
OFFICE OF INTERNATIONAL AFFAIRS
International Union Against Cancer
COMMITTEE FOR INTERNATIONAL COLLABORATIVE ACTIVITIES
INTERNATIONAL CANCER RESEARCH DATA BANK PROGRAM
INTERNATIONAL STANDARDS
• NOMENCLATURE
• STAGING
• END RESULTS REPORTING
International Classification of Diseases for Oncology
Histological Typing of Tumors
Clinical Cancer Patient Data System
SCIENTIST TO SCIENTIST EXCHANGE PROGRAM
Visiting Scientists
Research Workshops
RESEARCH PUBLICATION PROGRAM
CANCERLINE
Cancer Therapy Abstracts
Carcinogenesis Abstracts
Abstracts of Other Cancer Fields
Descriptions of Current Cancer Research Projects
CANCER INFORMATION DISSEMINATIONS and ANALYSIS CENTERS
Detection, Diagnosis, and Treatment
Carcinogenesis and Epidemiology
Cancer Virology and Biology
Current Cancer Research Project Analysis Center
SPECIAL INFORMATION PROJECTS
Latin American Cancer Research Information Project (Pan American Health Organization)
Developing Nations Information Project (World Health Organization)
Integration with Other Cancer Information Systems
Japanese Cancer Information Project
SPECIAL PROGRAMS
International Registry of Tumor Immunotherapy
Foreign Protocol Registry
Epidemiology Clearinghouse
CURRENT AWARENESS SERVICES
ON-LINE SEARCH
TECHNICAL BULLETINS
SUBJECT EXPERTISE
MONOGRAPHS
MAGNETIC TAPES
STATE OF THE ART REPORTS
THESAURUS
--- PROPOSED PROJECTS

Figure 3: Locations within the United States for Accessability to CANCERLINE of the International Cancer Research Data Bank



BILATERAL AGREEMENTS

Cooperative cancer programs between the National Cancer Institute and institutions in foreign countries are in effect as part of either bilateral agreements between governments or formal and informal agreements between the NCI and a scientific or society of a foreign country. The motivation for such international cooperation is based on the premise that cancer affects people in all countries of the world. It is well-known, however, that the incidence of various forms of cancer differs from one country to the other and from one geographic area to another in the same country. Thus, by achieving more effective exchange of cancer information between the nations of the world, our effort will be expedited toward earlier diagnosis of cases of cancer, more effective treatment of those patients and an improvement in the chances for their long-term survival. The following progress has been achieved through this effort.

USA-USSR ONCOLOGIC RESEARCH ACTIVITIES

Established by the 23 May 1972 USA-USSR Agreement for Cooperation in the Fields of Medical Science and Public Health, American-Soviet cooperation reflects positive results and concrete plans for continuation of a viable joint effort. Events in the six major problem areas during fiscal year 1976 indicate that collaboration has become more effective.

Problem Area I - Cancer Chemotherapy

In this problem area, the major attention continues in the general direction of selection and screening and of pharmacologic and toxicologic assessments of drugs of potential use in the treatment of localized and disseminated forms of human cancer. Cooperative, multidisciplinary approaches have been established for more effective treatment of a number of forms of cancer. There was agreement for specific protocols for joint investigations of approaches to mono- and combined methods of cancer treatment.

Some of these are reflected in the conclusions of the Fourth USA-USSR Annual Cancer Chemotherapy Program Review, in the Soviet Union from 5 to 14 April 1976, which consisted of four major segments: (1) "Conference on Ovarian Cancer"; (2) Meeting for "Correlation of Anti-Cancer Drug Screening Systems"; (3) THe Second USA-USSR Conference on "Lung Cancer Treatment"; and (4) The Annual Cancer Chemotherapy Program Review.

The status was reviewed of clinical and experimental studies of 47 American and 85 Soviet preparations which were exchanged by the sides. The results obtained were found to be significant especially for derivatives of nitrosourea, hexamethylmelamine, and DTIC from the USA, the Soviet preparation Ftorafur, as well as the anthracycline antibiotics from both countries.

The clinical studies of USA anti-cancer drugs in the USSR can be summarized as follows:

(a) In melanoma, the combination of actinomycin D-vincristine-methylnitrosourea (MNV) is superior to actinomycin D-vincristine-CCNU or actinomycin D-vincristine-CCNU-DTIC. The Soviets believe that MNU is an active drug in melanoma when used in combination.

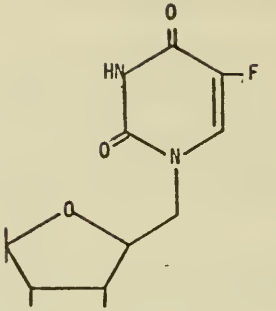
(b) In lung cancer, cytoxan and MNU shows slight superiority to cytoxan and CCNU.

(c) In breast cancer, both hexamethylmelamine (USA) and ftorafur (USSR) are individually highly active (>40% response rate) and clearly superior to their use in combination where gastrointestinal toxicity is prohibitive.

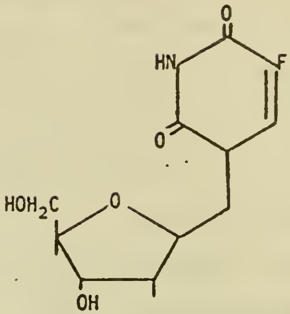
(d) In stomach cancer, CCNU and ftorafur and ftorafur alone are comparable or superior to our drugs, i.e., CCNU alone, 5-fluorouracil alone, and CCNU and 5-fluorouracil.

(e) In gastrointestinal cancer, streptozotocin (USA) and ftorafur is slightly better than streptozotocin and 5-fluorouracil.

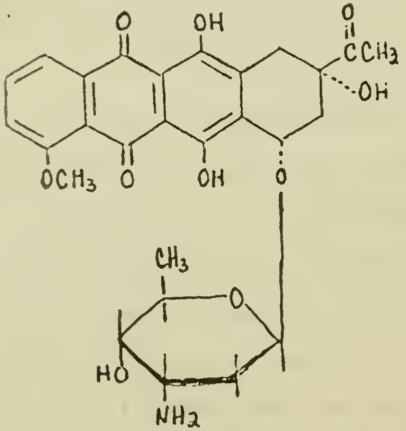
In the United States, the Soviet anti-cancer drug, FTORAFUR (an analogue of the American 5-fluorouracil, See Figure 4) was administered to 27 patients with metastatic malignancies (majority were adenocarcinomas). Of 24 evaluable patients, 4 (17%) responded--1 complete and 3 partial remissions. Responses were seen in 1 of 8 carcinomas of the lung, 1 of 5 carcinomas of the stomach, 1 of 3 carcinomas of the colon and 1 of 1 carcinoma of the jejunem. The duration of response ranged from 4 to 58 weeks. These studies, performed at the M.D. Anderson Hospital and Tumor Institute, Houston, Texas, indicate that FTORAFUR produced significant antitumor effects and tolerable toxicity in the patients.



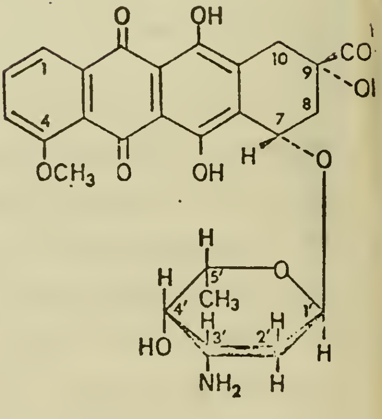
FTORAFUR (USSR)



5-FLUOROURACIL (USA)



CARMINOMYCIN (USSR)



ADRIAMYCIN (ITALY)

Figure 4: Structural Comparability of Anti-Cancer Drugs.

The Soviet anthracycline antibiotic, carminomycin, appears to have a spectrum of activity nearly identical to that of adriamycin (Italian drug), Figure 1. Comparable activity was observed in breast cancer, sarcomas, lymphomas and leukemia. Although nausea and vomiting are pronounced with the use of carminomycin, there is minimal alopecia and stomatitis. There is no evidence of cardiomyopathy with carminomycin.

NCI has submitted to the Bureau of Drugs, FDA, a Notice of Claimed Investigational Exemptions for the Soviet drug, FLUORODOPAN, for limited clinical trials in the Roswell Park Memorial Institute.

Resulting from the exchange of information on the problems of ovarian cancer, both sides agreed that current methods of treatment are not satisfactory. Therefore, it was considered valuable that both sides plan for prospective joint investigations based on exchanged and mutually acceptable therapy protocols. Implementation of collaborative work would be subsequent to agreement to a given protocol, especially in chemotherapy.

In spite of the similarity of the anti-cancer drug screening systems in both countries, there are peculiarities and distinctive features in the systems. Thus, it is considered important to use both systems with the hope that they would permit the identification of more new drugs and extend the spectrum of tumors sensitive to chemotherapy. The Soviets use a "panel approach" with a different panel of transplanted tumors for different classes of anti-cancer agents. Their sophistication is high in this area. They have become more diversified in their approaches. Their most innovative work appears to be in the antibiotic area with interesting work being done also in the anti-metabolite area.

There was agreement to the publication of a joint monograph containing all of the results obtained in experimental tumor systems used for anti-cancer drug screening by both countries. The monograph would consist of approximately 380 pages and will be entitled, "Analysis and Correlation of Screening Systems of Anti-cancer Drugs in the USA and the USSR."

Both sides are agreed on the urgency and need to continue joint efforts toward improving results of treatment for all forms of lung cancer. The Soviets, primarily, will continue to use CCNU (USA) as a "prophylactic" post-operative chemotherapeutic agent. And, studies will be continued on determining the efficacy of the combination of streptozotocin (USA), DTIC (USA) and vincristine (USA), together with radiation therapy, in the treatment of small-cell carcinoma of the lung. Protocols, based on pilot studies of other drug cominbations, will be exchanged for review and discussion and. subsequently, implemented if mutually acceptable.

Agreement was reached to exchange five American and five Soviet drugs for clinical trials and eleven American and ten Soviet drugs for pre-clinical testing.

Essentially, fulfillment was achieved of the commitments made by both sides during the previous year of cooperation. Based on the deliberations during these sessions, a potential exists for enhancement of the USA-USSR effort in cancer chemotherapy. There was no doubt that the exchange of anti-cancer preparations was extremely useful for oncologic patients in both countries.

In general, it can be stated that US-USSR collaboration in the field of cancer chemotherapy is actively developing and already has proved to be mutually beneficial. The understanding and communication between scientists and clinicians of both countries continues to improve. Possibilities are acknowledged for the study of anti-cancer drugs of mutual interest at earlier stages of their development thereby decreasing their trial period and avoiding serious errors in their clinical study.

Problem Area II - Cancer Immunology

In the present framework of problems, joint studies are being conducted on possibilities of: (1) specific active immunization as prophylactic for relapses and metastases of malignant melanoma, leukemia and sarcoma of bone and soft tissue; (2) nonspecific immunization for prophylaxis and treatment of melanoma patients, leukemia and sarcoma; (3) all around studies of the immunologic status of patients by methods of control and appraisal of the effectiveness of immunotherapy.

It is anticipated that new developments will occur during the Third USA-USSR Annual Cancer Immunology Program Review which will take place in the Soviet Union from 17 to 28 May 1976. As agreed to during the Second Meeting in April 1975, in Bethesda, a Joint Conference on Fetal and Tumor Antigens will precede the Program Review. This should provide the USA Delegation with greater insight into the state-of-the-art of the Soviet effort in this important area of basic and applied immunology.

Protocols for joint study are being reviewed, modified or replaced by others. At present, six protocols have been agreed to for joint study, the most recent of which includes: (1) the utility of C. parvum in an attempt at immunoprophylaxis against metastasizing melanoma; and (2) attempts to facilitate poly-chemotherapy in wide-spread forms of breast cancer with C. parvum. 650 vials, at 35 mg per vial, of this agent have been provided by NCI to the Soviets at no cost to NCI.

Problem Area III - Cancer Virology

Collaboration in this problem area is carried out in three primary directions: (1) cancer virology; (2) cancer immunology; and (3) molecular biology applied to cancer virology.

Attempts are being made to adapt viruses passed in species of macaque with leukemia for cultivation *in vitro* with purpose of identification and characterization. Potentially oncogenic viruses, separated from cultures of human and animal tissues, are undergoing identification and characterization, and studies are being conducted for establishing mechanisms of viral carcinogenesis.

In the Third Meeting of Cancer virologists of U.S.A. and USSR in May 1975 in the National Cancer Institute, Bethesda, it was noted, that both sides arrived at positive practical results. The most important results were the following: (1) isolation of a group of "potentially" oncogenic viruses from human tissues in continuous cell cultures by American and by Soviet scientists; (2) isolation of "candidate" oncogenic viruses of the herpes group and oncornaviruses of type C from two species of lower primates infected with products from the blood of human leukemic patients; (3) isolation and study of virus associated with leukemia of livestock. These and other results were reported during a 2-day symposium on the theme "Viral Neoplasia in Animals and Man."

The collaboration, consolidated in the time of the three last years, continues in the following fundamental directions:

1. Studies of viral proteins as methods for uncovering expressions of viral genes in animals and humans.
2. Studies of herpes viruses and their interaction with RNA-containing tumor viruses in malignant transformations.
3. Studies of the role of viruses in the induction of cancer of the breast in the human, including continuation of studies of monkey viruses of the Mason-Pfizer type and related viruses.
4. Studies of cellular control of virus gene expression.
5. Continuation of studies of non-human primate viruses in relation to human cancer.
6. Studies of viruses, isolated from human tissues in cell cultures or in animals and their possible role in pathogenesis of human neoplasia.
7. Studies of nucleic acids in their role in induction of tumors in animals and humans.
8. Collaboration on the breeding of non-human primates, which are threatened and in danger of extermination.
9. Studies of potentially oncogenic viruses, important to ecology of humans, for example, isolated from bovine, porcine, avian and other species of domestic and wild animals.

Problem Area IV - Mammalian Somatic Cell Genetics Related to Neoplasia

Collaboration in the present area is envisaged in cultivating two problems; mutagenesis and cell hybridization. For implementation, two specific subjects were selected. The first consisted of determinants of mutagenic activity of chemical carcinogens, viruses, and anti-cancer preparations at the chromosome and gene levels. The second would deal with studies of hybrids of normal and malignant cells and directed most likely toward biochemical, immunologic and other phenotypic expressions of these cells, rather than on chromosomal changes and aberrations.

Since the Third USA-USSR Meeting held in the USA in December 1975, working plans are in the process of being prepared for exchange in the following areas:

(a) genetic analysis of malignancy by means of somatic cell hybridization;

(b) study of mutagenic action of anti-cancer agents;

(c) study of genetic disorders with pre-disposition to malignancy in patients with: (1) recessive diseases with chromosome fragility; and (2) xeroderma pigmentosum and retinoblastoma; and

(d) clinical aspects of somatic cell genetics.

Corresponding American and Soviet scientists and responsible institutions have been designated for the pursuit of each of the four areas above and joint studies will be implemented as soon as there is mutual acceptance.

Problem Area V - Cancer Epidemiology

The Third USA-USSR Annual Program Review on the Epidemiology of Cancer took place during the period 15 to 25 March 1976 in the Soviet Union.

Several important conclusions ensued from these scientific exchanges.

The first follows upon the recommendations of the USA-USSR Working Group on "Breast Cancer Epidemiology", October 1976, in the Soviet Union. Administrative procedures have been agreed to for a Joint USA-USSR Program on Breast Cancer Epidemiology. A method has been established for the exchange of existing breast cancer data, i.e., the USSR coordinating center in Tallinn will furnish to the Harvard School of Public Health data from retrospective studies of 13,000 Estonian women--500 with breast cancer and 800 controls. These will be analyzed and compared with Harvard data. In June 1976, the Working Group will meet again, in Boston and Seattle, to develop breast cancer protocols for common use in both countries. Finally, urine samples will be exchanged for the study of estrogen fractions because of the relationship of low estrogen to estriol conversion as a possible index of high risk for breast cancer.

Secondly, there was agreement to plan for a collaborative program on cancer of the cervix, the body of the uterus and the ovaries.

Lastly, the joint monograph on "The Status of Epidemiology of Cancer in the USA and the USSR" has reached the stage where chapters will be exchanged before 1 October 1976.

The potential signfificance of this effort stems primarily from the informational point of view and to a lesser extent from the technologic. For instance, conclusions reached from USA and USSR studies may differ because of true biologic differences between populations as well as different methods of primary data collection and analysis. Thus, the cooperative studies agreed to should contribute significantly toward the "unification or standardization" of scientific and technologic approaches for the joint study of breast cancer epidemiology.

Problem Area VI - Cancer Control and Cancer Centers

Procedures and pathologic materials (slides) have been exchanged and are being reviewed for the agreed joint study on the "Evaluation of End Results of Treatment of Breast Cancer."

Both sides are accumulating, for exchange, data on the early detection of breast cancer in 5,000 patients in each country. The Soviets have been sent information on the current "Breast Cancer Detection Demonstration Programs" supported jointly by the NCI and the American Cancer Society.

Information from NCI has been sent also regarding the joint study for the rehabilitation of the breast cancer patient.

As recommended by the USA and USSR Coordinators for the Problem of Malignant Neoplasia and approved during the Fourth Session of the Joint Committee, an American Cancer Society Delegation will visit the Soviet Union during the period 20 June to 3 July 1976. They will visit institutions in Moscow, Kiev, and Leningrad for information exchange on "cancer education of the public" as practiced in the USA and the USSR.

During the Fiscal Year 1976, the following exchange of scientists took place:

To the Soviet Union	60 Americans for a total of 20.0 man-months
Administrators	2
Chemotherapists	15
Immunologists	16
Virologists	8
Epidemiologists	9
American Cancer Society	10

To the United States	15 Soviets for a total of 24.0 man-months
Surgeon-immunologist	1
Hematologist-immunologist	1
Virologists	7
Geneticists	5
Cancer Control Specialist	1

NCI-Japan Society for the Promotion of Science

In May 1974, the National Cancer Institute and the Japan Society for the Promotion of Science (JSPS) initiated an Agreement for Cooperation in Cancer Research. Thus, the USA-Japan Cooperative Cancer Research Program provides for: (1) sponsoring of scientific seminars selected for facilitating the exchange of information between American and Japanese cancer research scientists; (2) support of the exchange of scientists between the two countries for short and long-term visits for research collaboration; and (3) the exchange of materials. Eleven program areas were selected for development and implementation.

Chemical Carcinogenesis Program Area

In November 1975, a three day joint meeting was held in Hakone, Japan, on "The Methods and Evaluation of Carcinogenesis Testing in Experimental Animals". The objective was to exchange ideas on the development of improved methods for testing carcinogens in animals and to discuss testing protocols mutually acceptable in both countries, which would prove very useful in sharing information on experimental results and for avoiding duplication of effort.

In December 1975, a four day symposium on "Modified Cellular and Molecular Controls in Cancer" was held in Honolulu, Hawaii, with the participation of scientists from Australia, Japan and the U.S. The meeting was co-sponsored by the Australian Department of Science, the U.S. National Science Foundation, under the USA-Australian Agreement for Science Cooperation, and the NCI-JSPS Agreement for Cooperation in Cancer Research.

Some of the principal subjects covered at the symposium were as follows: "Hormonal Regulation in Cancer"; "Hormone Receptors and Function"; "Protein Hormone Action"; "Cyclic Nucleotides and Cancer"; "Transcriptional Controls"; "Post-Transcriptional Controls"; and "Transcriptional-Post Transcriptional Controls". Over 40 participants attended this conference. There was agreement to publish the proceedings of this symposium as soon as practicable.

Cancer Virology Program Area

The Second Symposium on Cancer Virology was held in Kyoto, Japan, in March 1975. Discussion focused on the polyoma and SV40 viruses and the role of viruses in human carcinogenesis. The meeting was well attended. Two of the American participants later visited and presented seminars on oncogenic viruses at leading Japanese research centers.

Cancer Therapy Program Area

In December 1975, a team of American oncologists met with leading Japanese surgeons and oncologists to evaluate the status of gastric cancer treatment in Japan. During their visit, a symposium was held on the diagnosis and treatment of gastric cancer. This was followed by a series of visits to the National Cancer Center Hospital and Research Institute, National Hospital Center, the Cancer Institute Hospital and the Cancer Chemotherapy Center. Discussions were held on the surgical and adjuvant chemotherapy treatment of gastric cancer. The Japanese oncologists have developed a very sophisticated system for diagnosis and staging which was of value to the American oncologists. A very good potential exists for collaborative studies on the treatment of gastro-intestinal cancers with surgery combined with chemotherapy. The early treatment of gastric cancer in Japan has been very successful because of mass screening programs and sophisticated diagnostic techniques. Prospects for further collaboration will be explored during the visit of several Japanese investigators to U.S. Cancer Centers and during their participation in meetings of the NCI-sponsored Gastrointestinal Tumor Study Group.

In February 1976, the Joint Cancer Therapy Group convened a three day meeting in Kona, Hawaii, the highlight of which was a "Symposium on the Nitrosoureas and Bleomycin." Eight Americans and ten Japanese oncologists jointed to review the results of clinical trials of several nitrosoureas and to discuss the possible initiation of joint studies for preclinical evaluation and coordination of clinical results. The clinical use of Bleomycin and its new analogues were discussed. The Japanese oncologists presented information on the synergistic action in experimental cancer of Bleomycin and Bestatin, a leucine aminopeptidase inhibiting antibiotic. There is a major effort in Japan to use Bleomycin, in combination with radiotherapy, for the treatment of head and neck cancer and esophageal cancer. It is anticipated that discussions on these drugs will be held on a continuing basis with the exchange for testing of newly developed analogues and the sharing of clinical data which has been obtained.

High LET Radiation Therapy Program Area

In July 1975, a team of 6 American radiologists and radiation physicists spent one week in Japan to study the development of Japanese high LET radiation facilities; the possibilities for joint preclinical and clinical trials; and an exchange of information and scientific personnel for cooperative studies. One of the purposes of this visit was to determine areas of cooperation and the development of suitable protocols for clinical trials. Currently, there are two groups in Japan which are almost ready to undertake clinical trials. There are three facilities in the U.S. now conducting preliminary clinical trials with neutron radiation. A fourth U.S. group should be ready during the coming year.

The meeting participants, 6 American and 25 Japanese scientists, represented the fields of physics, radiobiology and radiation therapy. The subjects of discussion included basic neutron and radiobiology, clinical trial protocols with neutron therapy, and the evaluation of biologic effects in experimental animals. Plans were made to facilitate comparative studies on physical and radiobiologic dosimetry through the periodic exchange of scientific personnel.

Thus, in the Spring of 1976, two Japanese radiobiologists visited the United States, while on American spent 3 months in Japan engaging in collaborative research. In April 1976, a group of three radiation physicists and a radiobiologist spent three weeks in Japan carrying out cooperative studies on physical dosimetry.

Cytology Program Area

In June 1975, a joint Seminar on Cancer Cytology was held in San Francisco, California. A group of 20 American and Japanese cytologists, pathologists and computer scientists assembled to discuss bi-national interests and efforts in the area of cytology automation. Two of the aims of the program are the solution of problems associated with automation of the cancer screening function and the subject of quantitative cytology. These are problem areas which have been established as short and long-term goals. There are presently two systems--flow and slide--used for screening functions. One problem arises in the collection of specimens and their preparation for automatic screening. The other problem area is the standardization of methods of preparation and quantitative cytology for diagnostic purposes. Although considerable effort has been applied by scientists of both countries to develop instrumentation for automated screening, there still is great need for continuing collaborative efforts in the exchange of experimental and developmental data for comparative studies.

Breast Cancer Program Area

A joint Breast Cancer Program Meeting was held in Tokyo, Japan, in March 1976, with approximately 30 participants from both countries. Integral to this meeting was the attendance by some in the International Conference on Mammary Cancer in Experimental Animals and Humans. The subjects of discussion in the Tokyo meeting were: (1) analytic epidemiology of breast cancer; (2) etiology and diagnosis of breast cancer; (3) treatment of breast cancer; (4) nation-wide organization for breast cancer study;

(5) hormone receptors on breast cancer cells; (6) biologic study of mammary cancer; and (7) mammary cancer virus. The meeting was extremely important to bring into focus the types of research conducted in both countries. Based on these discussions, preliminary plans were made to organize cooperative studies on the effect of diet on breast cancer, continuation of collaborative research on hormone receptors and joint studies on treatment of breast cancer, including combined modalities and chemotherapy. Scientists will be encouraged to attend the annual scientific meetings on breast cancer which are held in both countries.

Analytical Epidemiology Program Area

The Japanese delegation to the meeting of the Joint Working Group on Epidemiology participated in the conference on The Genetics of Human Cancer, sponsored by the Epidemiology Branch, NCI, in Orlando, Florida, from 1-4 December, 1975.

Following the Conference a 1-1/2 day meeting of the Joint US-Japan Working Group took place, highlighted by discussions of "Precious Cases for Epidemiologic Study". The objective was a review of the information generated by the preceding conference, supplemented by discussion of recent developments in environmental carcinogenesis of mutual interest in the bi-national program.

A number of subject areas were discussed that would be of considerable interest for cooperative studies such as: (1) genetic studies of cancer in Japan, comparable to the regional study of Mormons in Utah; (2) studies on the aggregation of cancer in families; (3) gall-stones, bile and bowel cancer; (4) environmental carcinogens, such as PCB and PBB; (5) childhood cancer; (6) immunodeficiency registry; (7) occupational cancers; and (8) mapping of mortality data by county or health care district.

Bladder Cancer Program Area

The Joint US-Japan Working Group on Bladder Cancer held a three day seminar on "Experimental Models for Bladder Cancer" in Honolulu, Hawaii, in December 1975. The participants included 10 American and 6 Japanese scientists meeting for the purpose of: (1) discussing the current status of methods utilized to induce urinary bladder cancer in experimental animals; (2) exchanging information on pathogenesis and histopathology; and (3) a description of similarities and differences exhibited in these experimental models and in human bladder cancer.

Data was presented on the induction of neoplasia in experimental animals with such compounds as complex nitrosoamines, nitrofurans, extracts of bracken fern and other substances. The value of experimental bladder carcinogenesis studies appeared to be: (1) to provide public health authorities with data for carcinogenicity assessment; (2) to elucidate chemical structure-activity relationships; (3) to provide a basis for the evolution of biochemical-biophysical theories of carcinogenesis; and (4) to facilitate clinico-pathologic and treatment studies.

The meeting proved to be worthwhile for exploring opportunities for informal collaboration and to promote interpersonal communication and information exchange through the exchange of scientific personnel.

Lung Cancer Program Area

During this year several Japanese clinical researchers were invited to attend the NCI Early Lung Cancer Cooperative Group meetings which were held in Baltimore and Rochester. They were provided with an opportunity to participate in deliberations regarding optimal lung cancer screening programs. Also the Japnese clinicians and investigators developed superb instrumentation, such as the broncho-fiberscope for early detection of lung cancer, which has been shared with the American investigators from the early developmental stages.

In November 1975, a team of 5 American oncologists met with a large group of Japanese cancer specialists for detailed discussions concerning existing and planned studies being conducted in the U.S. and Japan, on the detection and therapy of early lung cancer, as well as the evaluation of endoscopic, bronchographic, cytologic, pathologic and epidemiologic investigations. Numerous interesting case studies and demonstrations were included.

The general consensus was that this was an excellent beginning upon which to build a continuing productive dialogue between the investigators from both countries by means of regularly scheduled meetings in the future. It was recommended that the Japanese Group for the Diagnosis of Early Lung Cancer be invited as a full and active participant in the various deliberations of the NCI COoperative Early Lung Cancer Group. It was also recommended that consideration be given to the regular exchanges of accumulated data, chest radiographs, slides from tumor tissue and sputum cytologic specimens, as well as cinematographic films or video tapes of endoscopic examinations. It was the consensus that dialogue between scientists would be greatly enhanced by the exchange of young investigators and fostering continued cooperation and advancement of epidemiologic, diagnostic, therapeutic and technical skills.

Cancer Immunology Program Area

The Joint US-Japan Working Group on Cancer Immunology held a 2 1/2 day meeting on immunotherapy in California in March 1976. A group of 10 American and 9 Japanese investigators assembled to discuss immunotherapy of cancer in experimental animals and human clinical cases. The immunotherapeutic activity of BCG and BCG cell wall skeleton drew considerable interest among the participants. Immunologic and immunotherapeutic studies on patients with sarcoma, melanoma, bladder cancer and leukemia were discussed.

Future plans are to continue the dialogue in the areas of clinical immunology and immunotherapy which were initiated by the previous and the current meetings.

Metastasis Program Area

The first Joint Meeting on Metastasis in May 1976 in Kona, Hawaii, was devoted to a "Workshop on Metastasis-Fundamental Approaches to the Mechanism of Formation, Prevention and Treatment". There were approximately 20 participants who discussed ongoing investigations in: (1) Tumor Cells Characteristics and Metastasis; (2) Host Responses and Metastasis; (3) Control of Metastasis; (4) Treatment of Metastatic Diseasel (5) Biology of Metastasis; and (6) Future Efforts in the Program on Metastasis. One of the main purposes of the workshop was to stimulate investigation of the mechanisms of metastasis and to exchange information the current status on the biology of metastasis.

Scientist Exchange

During FY 1976, there were 15 Japanese investigators hosted at leading American cancer research centers. 15 American senior scientists spent one week to three months in Japan presenting seminars and engaging in collaborative research activities.

Progress in the NCI-JSPS Program has been impressive during the first eighteen months, particularly due to the effort of the Program Coordinators and the participants in each of the Program Areas, in order to familiarize each other on the current research activities in the cancer fields. The Program has greatly assisted in the strengthening and solidifying the mutual efforts and activities in cancer research. The Program has enabled leading American and Japanese scientists to meet and to openly discuss research of mutual interest. The collaborative activities and meetings emanating from these initial interactions have been very fruitful and productive.

USA-POLISH PEOPLES REPUBLIC

Pursuant to the 8 October 1974 Agreement between the United States of America and the Polish Peoples Republic for Cooperation in the Field of Health, NCI has established a institute-to-institute relationship with the Institute of Oncology of Warsaw, Poland. Cooperative effort is implemented by means of: (1) the exchange of scientists and technical information; (2) the exchange of materials; (3) organization of joint meetings and conferences to facilitate consultation among experts; and (4) the initiation of joint research programs.

During FY 1976, collaborative activities involved visits by several leading American cancer specialists, to institutes in the Polish People's Republic and several of the leading Polish scientists spending long periods of time in American laboratories engaged in research of mutual benefit and interest.

In October 1975, one of the American leaders in the problem of viruses of human cancer delivered a series of seminars on this topic to Polish scientific audiences in the Institutes of Oncology in Warsaw, Gliwice and Krakow. In March 1976 an NCI cancer specialist, during his visit to the Warsaw Institute and its branches, presented seminars on the metabolic processes and effects of carcinogens and xenobiotic substances in human cells in tissue culture. His interaction on these cancer problems with Polish cancer researchers and clinicians was mutually beneficial.

Lectures and seminars on "oncogeneic viruses" and "intradermal immunization against leukemia in guinea pigs were the essence of a subsequent visit by another American in May 1976. Shortly thereafter, an American radiotherapist engaged in scientific exchanges on "Radiation therapy and surgery in the treatment of breast cnacer; "Elective irradiation of lymph nodes in head and neck cancer;" and "Conservative surgery and radiation therapy in the treatment of cancer." Both scientists spent their brief periods of time in the Institutes of Oncology in Warsaw and Krakow.

The scientific pursuit of Polish cancer specialists visiting the United States varied. One of them came for three months to engage in collaborative research in radiobiology and radiotherapy. His primary objectives during his three months visit was to learn the latest techniques in radiation therapy. Another was engaged in cancer immunology research for a three months period. The interests of a third Polish scientist were devoted to the endocrinologic relationships in cancer. The two most recent Polish visitors are working, respectively, in radiation therapy research and cancer virology.

USA-FRANCE PROGRAM

A small strategy committee comprised of senior scientist administrators from the Institut National de la Sante et de la Recherche Medicale (INSERM) and the National Cancer Institute was established to plan and monitor this program. Three areas of cancer research will be given special emphasis in the first year of cooperation. These are: (1) viral oncology including immunologic aspects; (2) hormonal control of neoplasia; and (3) controlled therapeutic trials.

Prominent American and French scientists have been identified as Program Coordinators for the first two subject areas. The coordinators have met and are developing, with their scientific teams, some specific protocols for cooperative studies.

NCI and INSERM will support jointly collaborative investigations through normal funding mechanisms. Additional monies, if necessary, will be made available to ensure the maximum effective exchange of scientific personnel.

USA-FEDERAL REPUBLIC OF GERMANY PROGRAM

During informal meetings in 1975 and 1976 between the National Cancer Institute and the German Ministry of Research and Technology possibilities of cooperation in specific cancer problem areas were discussed. There was general agreement among representatives of both countries to hold several meetings and workshops on subjects of mutual interes

Pursuant to an invitation from the German Cancer Research Center in Heidelberg, in June 1976, a delegation of 17 American scientists particpated in a "Workshop on Technologies for Automation in Cervical Cancer Screening." Visits to cancer research centers were included in the exchange program.

The workshop and laboratory visits enabled the investigators to become familiar with the NCI Program on Automated Cytology and the efforts in Germany. Possibilities were explored for developing collaborative research programs at the scientist-to-scientist level.

USA-UNITED ARAB REPUBLIC OF EGYPT

In the spring of 1975, a group of American cancer specialists visited several institutions in Egypt to obtain information on the status of the Egyptian cancer program. Reciprocally, upon invitation, a group of six Egyptian medical oncologists participated in the winter meeting of the USA Southwest Oncology Group. Subsequently, the Egyptian physicians visited the National Cancer Institute where they met with senior NCI investigators to discuss areas of mutual interest as well as possibilities of future collaboration to be funded under the Special Foreign Currency Program (PL480). It was agreed during these discussions to initiate cooperative research programs in the near future.

USA-YUGOSLAVIA PROGRAM

During the Fall of 1975, an NCI medical oncologist participated in the "Symposium on Cancer and Cardiovascular Diseases" held in Dubrovnik, Yugoslavia. During these meetings he was able to meet with several Yugoslav cancer specialists to discuss areas of mutual interest and with the potential for future cooperation. In Zagreb, the chemotherapy project, funded under the USA-Yugoslav Joint Funding Program has been very productive. The joint program will continue and could serve as the focal point for scientist exchanges between the two countries.

COLLABORATIVE RESEARCH WITH FOREIGN NATIONALS

NCI VISITING SCIENTISTS PROGRAM:

The National Cancer Institute has hosted visiting scientists, associates, fellows, experts and guest workers from 28 countries, for collaborative cancer research projects with senior NCI investigators. During FY 1976, a total of 126 visitors and their NCI hosts were engaged in fundamental and clinical research, environmental research and cancer health services, Table 1. The value of such scientist-to-scientist interaction is assessed in terms of its positive impact on the development of sound international cooperation in cancer research and cancer control.

NCI RESEARCH GRANTS AND CONTRACTS:

The five operating divisions of the National Cancer Institute awarded 25 research grants and 79 contracts to scientists and institutions in foreign countries during FY 1976. The distribution of research grants, totalling over one million dollars and scientific project areas are shown in Table 2. The NCI contracts in other countries and with international organizations are listed in Table 3. The projects supported by the contracts are arranged according to scientific disciplines.

Under the provisions of the Special Foreign Currency Program (Public Law 480), there are 8 active cancer research agreements in four countries. In India there are 2 projects in clinical investigation and one each in epidemiology, drug development and cancer biology. The Polish project deals with cancer epidemiology, being carried out at the Institute of Oncology in Warsaw. One project is active in Tunisia

TABLE 1: SCIENTISTS FROM FOREIGN NATIONS VISITING NCI, FOR RESEARCH ACTIVITIES, FY 1976.

Countries		NCI Visiting Scientists	Expert Appointments	Guest Worker
Japan		19	3	3
India		16	-	-
United Kingdom		13	2	1
Israel		12	1	1
China, Republic of, (Taiwan)		7	-	1
Italy		6	1	1
Belgium		4	-	-
Other:	Western Europe	12	1	5
	Eastern Europe	-	-	2
	Latin America	2	1	2
	North America	2	1	2
	Asia and Australia	4	1	4
	Africa	3	-	1
Others:		26	2	-
	Totals	126	13	23

TABLE 2: NCI RESEARCH GRANTS TO SCIENTISTS IN FOREIGN INSTITUTIONS, FY 1976

Countries	No. of Grants	Amounts
Canada	5	171,220
Sweden	2	143,030
United Kingdom	5	115,253
Australia	2	85,658
Italy	2	80,100
Finland	1	49,000
Portugal	1	44,700
Israel	1	44,100
Spain	1	22,000
Denmark	1	20,300
International Organizations		
EORTC	2	331,143
UICC	1	25,000
WHO	1	87,859
Totals	25	1,219,363

Project Areas of Grants

Project Areas	Numbers
Immunology	6
Chemotherapy	4
Epidemiology	4
Organ Sites	4
Carcinogenesis	2
Drug Development	2
Viral Oncology	2
Radiation Therapy	1
Total	25

TABLE 3: NCI CONTRACTS WITH INSTITUTIONS IN OTHER NATIONS, FY 1976

Countries	Numbers	Total Amounts
Israel	16	1,749,328
Italy	9	899,937
Sweden	10	766,547
Australia	5	466,678
Netherlands	5	465,448
Canada	5	446,504
Japan	4	363,308
United Kingdom	5	174,204
Finland	4	159,000
Uganda	1	125,000
Others	9	502,016
International Organizations		
IARC	5	1,014,575
UICC	2	446,570
WHO	1	38,364
Totals	81	7,617,479

Project Areas of Contracts

Project Areas	Number
Immunology	25
Epidemiology	10
Experimental Therapy and Drug Development	10
Clinical Trials	8
Special Projects	6
Molecular and Cell Biology	5
Virology	5
Biochemistry	4
Carcinogenesis	4
Organ Site	2
Cytology	2
Total	81

and deals with the study of breast carcinoma. A project on immunosuppressive and anti-leukemic activity is being conducted at the "Ruder Boskovic Institute" in Zagreb, Yugoslavia.

Exemplary of the NCI international collaborative effort are projects such as the research being pursued by scientists of the Karolinska Institute in Stockholm, Sweden, dealing with cancer immunology. Being studied are the mechanisms regulating surface antigen expression and suppression in cancer cells, and the regulation of antigens determined by oncogenic viruses. The Swedish scientists are pursuing as well the genetic analysis of tumor antigen recognition and are exploring the possibilities of rendering non-responsive hosts responsive by the introduction of non-recognized antigen together with highly immunologic moities.

The Mario Negri Institute in Italy, has established a regional laboratory for the acquisition and screening of new drugs for anti-cancer activity. It is estimated that 1500 new compounds, obtained from various Southern European countries, will be tested at the facilities.

Scientists in the Institute of Cancer Research, Royal Cancer Hospital in England, are studying the effects of chemotherapeutic agents in experimental solid tumor systems and in human xenografts transplanted into immuno-suppressed mice. The relation is being studied of their proliferative state and the vascular supply of the tumors in order to compare the effects of the chemotherapeutic agents on the hemopoetic system. In the past, in vivo and in vitro assays have been developed at the Institute for melanoma, lung carcinoma and normal marrow. The interrelationships among the effects of chemotherapy and radiation are being studied, as well as experimental therapy with combined modalities.

Investigators of the National Institute for Tumor Research in Italy have been conducting the evaluation of anti-cancer drugs in single drug therapy and combined drug treatment in controlled clinical trials. Four studies are being performed: (1) adjuvant combination chemotherapy for breast cancer with positive axillary nodes; (2) controlled study with multiple drug combinations for metastatic breast cancer; (3) controlled study of new chemotherapeutic regimens in advanced carcinoma of the stomach, colon and rectum; and (4) a controlled study of the American drugs, BCNU and CCNU, and irradiation in the treatment of glioma.

This group has recently revealed the results of a study which shows that after 27 months from the start of the experiment, the use of cyclophosphamide, methotrexate, 5-fluorouracil (CMF) following surgery prevented the recurrence of cancer in 94.7% of the women treated for breast cancer. This compares with a recurrence of cancer in 24% of a group of women who underwent surgery only.

Three world renowned scientific research institutes have very strong programs in immunology, and all three of these institutes are doing studies supported by contracts from the Tumor Immunology Program, DCBD, NCI.

Scientists of the Walter and Eliza Hall Institute of Medical Research, Melbourne, Australia, are evaluating tumor antigens and immune responses to tumors, including plasma cell tumors (malignancies of the B-cell system) and thymomas and other T-cell malignancies. One result of significance is a new assay system to detect the transfer of immune reactivity with transfer factor. Success in this area would offer highly significant new approaches to the use of the immune system to treat cancer. Another investigative effort relates to the evaluation of colony stimulating factor (CSF) for its possible ability to cause maturation and or differentiation of leukemic tumor cells.

In the Weizmann Institute of Science, Rehovot, Israel, several investigators are evaluating the interaction of immune mechanisms with tumor cells in tumor bearing animals. An attempt to treat tumors by the use of tumor specific antibodies, which have been conjugated with anti-tumor drugs, is under study. If this approach can be perfected, it would permit the delivery of drugs in high concentrations directly to tumor sites and at a greatly reduced overall toxicity. Thymic hormones are being isolated and purified and their effect is being studied on immune mechanisms in the tumor-bearing host. The possible usefulness of sensitizing lymphocytes, in vitro, against autologous tumor is being studied as well.

Additionally, in the Karolinska Institute, a number of mouse tumor systems, special categories of human cancers, and cancers of the immune system itself are being used to dissect the mechanisms whereby the cancer patients' immune system responds to the cancer in ways that are either beneficial or non-helpfyl to the host. In support of the studies of immune mechanisms, additional evaluation of methodologies for separating T-cells and B-cells from lymphoid tissue and blood are being developed. In particular, it is hoped that these methods will lead to the availability of high concentrations of cells having reactivity against specific types of cancers. Synergism and/or antagonism between various components of the immune response can result in defective capacity to reject a tumor and the cell interactions involved are being studied.

NATIONAL CANCER INSTITUTE

ANNUAL REPORT

July 1, 1975 through June 30, 1976

RESEARCH CONTRACTS BRANCH

General

Research contracting leveled off in FY 1976 at about the same total dollar amount as FY 1975. As indicated on the accompanying table entitled "Research Contracts Awarded, NCI, by Dollars and Numbers", this level represents a 3.5 fold increase in research contracts value over the five year period 1971-76. The leveling off parellels lesser increases in total NCI appropriations than were experienced in the years immediately following the passage of the National Cancer Act of 1971, and the decision to fund some research projects through the newly established mechanism of Cancer Research Emphasis Grants.

NCI's research contracts continue to constitute the preponderance (about 67%) of NIHs' research contracts activity.

Organization of RCB

RCB continued to follow its policy of adapting its organizational structure to the changing demands placed upon it. Whereas in FY 1973 it had initiated a new section in Cancer Control to handle contracts of that growing program, in FY 1974 it added two additional new sections in an area formerly handled by a single section dealing with the large contracts program of the Division of Cancer Cause and Prevention. The two newly established DCCP sections were the section for Virology and Field Studies and Statistics, and the section for Carcinogenesis. These brought the total RCB Sections to 5, the others being (1) Cancer Biology and Diagnosis, (2) Cancer Treatment, and (3) Cancer Control. These organizational additions enabled RCB to continue to implement its management philosophy of providing close-in support to the work of the operating divisions. Under this concept, Contracting Officers and Contract Specialists work in proximity to the separate Divisions of NCI, and thereby insure a smoothly working "team" approach to the award and administration of research contracts.

Management of Workload and Manpower

An analysis of the detailed workload data for NCI shows that four of the five Divisions experienced a small increase in dollar volume. A management decision not to fund any major new construction under contracts, resulted in a substantial reduction in construction contract activity. Some minor shifting of manpower resources was carried out in order to adjust to changing workload volumes. The ability of RCB to handle the substantial increase in workload since 1973 with only a token increase in personnel, is attributable to the use of multi year contracts utilizing incremental funding and the heavy use of overtime.

Frederick Cancer Research Center

The Frederick Cancer Research Center (FCRC) is the only Government owned-Contractor operated (GOCO) facility that exists within DHEW. The basic contract to operate the Center, initially awarded in June 1972, is a cost-plus-award-fee/fixed-fee contract and is one of the largest ever awarded by DHEW. It has been in a constant growth pattern since award and will continue to grow through fiscal year 1977. The FCRC is also supported by an Interagency Agreement with the U.S. Army, landlord for such basic support services as heat, electricity, maintenance of roads and grounds, telephone services, etc.. A history of the funded amounts of the contractual instruments supporting the Center is shown in the following table:

	Contract Award	Interagency Agreement	Total
FY 1973	$10,600,051	$ 1,667,000	$ 12,267,051
FY 1974	15,472,835	2,800,000	18,272,835
FY 1975	19,405,398	3,300,000	22,705,398
FY 1976*	22,880,137	2,800,000	25,680,137
TQ *	8,318,700	750,000	9,068,700
FY 1977*	27,212,458	3,000,000	30,212,458
* Estimated		Cumulative Total	$118,206,579

The role of the FCRC has been two fold, that of a resource to NCI, as well as that of a center of research excellence. In the early contract years, the balance of work weighed heavily toward that of a resource to NCI. More recently, the function of FCRC has evolved to the point where the FCRC is now considered to be primarily a center of research excellence in its own right. During the period beginning in June 1976, the Basic Research Program will become fully operational. Outstanding research activity in the areas of Viral Oncology, Chemical Carcinogenesis, and Cancer Treatment, will pick up considerable momentum during this period.

Because of the operational ceiling established for the NCI activity at the FCRC, it is expected that NCI will not utilize all of the laboratory space or facilities made available by the U.S. Army in 1971. Other NIH activities have been investigating possible use of these facilities for various purposes. Any NIH activities found to be feasible for these facilities will be added to and made a part of the basic NCI contract for operation and maintenance of the FCRC.

The single most significant contractual matter on the horizon for the ensuing contract year concerns the decision by NCI to recompete the contract for the period beginning September 1977 for a multi year contract. It is intended that the management of the FCRC will be the subject of competition with offerors allowed to suggest alternatives to the presently structured research program.

Small Business and 8A Program

Of the 1229 contracts in force at NCI in FY 1975, 19 or .0158% were Small Business and/or 8(a) contracts. Of these 13 were Small Business and 6 were 8(a) contracts. The corresponding dollar amounts were $257,160,256 in total FY 1975 contracts, of which $1,763,054 was in Small Business contracts and $454,193 was in 8(a) contracts, for a total in both categories of $2,217,247. Expressed in percentages, .0158% of the total number of contracts was either Small Business or 8(a), and .0086% of the total contract dollars was in either Small Business or 8(a). The 8(a) percentage represents the results of several years of concerted efforts by the Branch and by NCI to increase minority Small Business contractor participation. Greater participation by Small Business other than 8(a) has not been achieved for two reasons, as follows:

(1) The figures understate the true degree of Small Business contracting activity by NCI programs because they cover only the Research Contracts Branch's contracts and exclude contracts of NCI awarded by the NIH Procurement Branch, which has central responsibility for awarding all base support and supply contracts. Such activities are likely to encompass a higher percentage of Small Business firms than Research Contracts, as for example, conference support.

(2) The capabilities of Small Business concerns in biomedical research are limited.

EEO Contract Compliance

In FY 1976 the RCB continued its effort in the EEO Contract Compliance area. These efforts were accomplished primarily through the continued utilization of Contract Specialists and Project Officers making inquiries at the time they conduct site visits. It is our understanding that PHS has essentially adopted the NCI approach to contract compliance for applicability to its service-wide Civil Rights Plan.

The RCB is about to conduct its second annual survey of all contractors subject to the provision of Executive Order 11246. As a result of the survey, we hope to identify those contractors who appear to be in noncompliance and work with them as an assist to HEW. Hopefully, we can avert situations such as occurred during June 1975 when several NCI projects were in danger of not being funded because we were unable to obtain preaward clearance from DHEW/Office for Civil Rights. This effort appears to have good potential.

Contracts Management System

During the past year the RCB Contracts Management System has experienced substantial growth and expansion. The range of services has been broadened to include the following capabilities:

1. RCB/DFM Financial Reconciliation System
2. EEO Compliance System
3. Contract Milestone Tracking System
4. On-line/Interactive Keyword Retrieval System

In addition, the last year has seen the number of users more than double. The RCB Contract Management System has been the recipient of numerous favorable reviews by many of the other Institutes at NIH, and a very keen interest has been shown on the part of NIH in acquiring a similar capability for all of NIH.

ANNUAL REPORT
RESEARCH CONTRACTS AWARDED NCI
BY DOLLARS AND NUMBERS

(Dollars in thousands)
(Years are Fiscal Years)

	1971	1972	1973	1974	1975	1976*	TQ*
Div. of Cancer Cause & Prev.							
Office of Dir.	---	---	$ 615	$ 3,223	$ 7,528	$ 10,236	$ 2,750
(Numbers)	---	---	(1)	(13)	(26)	---	---
Carcinogenesis	$ 10,573	$ 23,214	27,547	29,649	39,827	39,933	7,528
(Numbers)	(71)	(125)	(122)	(169)	(156)	---	---
Virus	31,411	42,649	43,517	49,537	52,631	49,600	10,000
(Numbers)	(117)	(130)	(121)	(193)	(139)	---	---
Field Studies	4,412	5,269	6,891	6,830	5,915	8,206	2,167
(Numbers)	(51)	(50)	(56)	(52)	(68)	---	---
Task Forces	---	---	---	---	---	---	---
Sub-Total	$ 46,396	$ 71,132	$ 78,570	$ 92,922	$105,901	$107,975	$ 22,435
(Numbers)	(239)	(305)	(300)	(427)	(389)	---	---
Div. of Cancer Treatment	$ 24,235	$ 40,292	$ 42,255	$ 57,384	$ 62,450	$ 65,745	$ 12,000
(Numbers)	(165)	(202)	(227)	(277)	(288)		
Task Forces	---	---	---	700	682	750	---
Sub-Total	---	---	---	$ 58,084	$ 63,132	$ 66,495	$ 12,000
Div. of Cancer Bio. & Diag.	$ 4,354	$ 9,609	$ 11,717	$ 17,613	$ 25,397	$ 25,899	$ 4,090
(Numbers)	(40)	(74)	(114)	(265)	(307)	---	---
Task-Forces	---	---	---	7,881	5,323	9,270	1,500
Sub-Totals	---	---	---	$ 25,494	$ 30,720	$ 35,169	$ 5,590
Div. of Cancer Control & Rehab.	---	---	$ 3,800	$ 26,912	$ 48,134	$ 43,300	$ 10,560
(Numbers)	---	---	(30)	(135)	(199)	---	---
Major Construction and Other	$ 3,000	$ 4,999	$ 8,000	$ 9,288	$ 24,249	$ 19,130	$ 2,300
(Numbers)	(1)	(7)	(6)	(19)	(60)	---	---
TOTALS	$ 77,985	$126,032	$144,342	$212,700	$272,136	$272,069	$ 52,885
(Numbers)	(445)	(588)	(677)	(1123)	(1,243)	---	---

* DAta for 1976 and TQ estimated - Contract numbers cannot be estimated.

ANNUAL REPORT
OFFICE OF THE ASSOCIATE DIRECTOR FOR PROGRAM PLANNING AND ANALYSIS (OADPPA)
NATIONAL CANCER INSTITUTE
July 1, 1975 - June 30, 1976

OFFICE OF THE ASSOCIATE DIRECTOR

The traditional functions of the OADPPA are providing leadership, consultation and direct participation in program analysis and planning as a service to NCI program units and to major non-Federal organizations participating in the cancer effort at the discretion of the Director of the National Cancer Program.

The office has major responsibility for the planning and analysis functions associated with the National Cancer Program (NCP) and the planning requirements of NIH and DHEW. The office coordinates activities for the preparation of the following:

(a) The annual plan for the NCP including 5-year budget projections for submission to the President,

(b) The NCP Strategic Plan,

(c) Certain portions of the NIH Forward Plan,

(d) The NCI portion of the NIH Evaluation Plan,

(e) Operational Planning System (OPS) objectives for tracking by NIH and DHEW, and

(f) Plans for individual research and control programs.

The office is also responsible for the development and implementation of the NCP Management Information System (MIS) in close collaboration with the NCI operating divisions.

Personnel changes during the year reflect the need for specialized talents to enable the office to respond more effectively to the Institute's requirements in the areas of planning, analysis, and management information systems. Two Expert Consultants joined the staff: Mr. Douglas Pugh is a systems programmer with considerable experience in computer graphics. Mrs. Betty A. Sullivan is a senior systems analyst with a broad background in data processing. Mrs. Carole H. Maloney is a programmer analyst with special interest in on-line systems. Mr. Robert Namovicz came to the staff from the Office of Management and Budget and served as senior program analyst until he was appointed Chief, Management Policy Branch, within the Office of the Associate Director for Administrative Management. Ms. Oral L. Bynum completed her training program and joined the staff as a clerk-typist. Ms. Pamela Presgraves joined the staff also as a clerk-typist.

Some staff assignments are carried out solely by one Branch while others, because of the mix of talents required, are accomplished through collaboration between the two Branches. To avoid repetition in the separate reports of Branch activities, the collaborative assignments are described here.

A. Preparation of a correlation of Tyson's Corner and Airlie House Project Areas in Objectives 1-7 of the NCPP.

B. Acting on recommendations of the NCI Executive Committee to improve program coordination, the OPPA coordinated a cooperative effort with representatives from the Office of the Director and operational Divisions to define a set of major NCI programs and develop a catalogue describing major efforts contributing to the programs and associated staff participants and resources committed to activities within the program. During a series of working meetings with all participants, 10 major programs were defined and activities in each division which contribute directly or indirectly to the goals and content of these programs were identified. A catalogue of these programs and activities is being developed. The catalogue will serve as a program directory and will identify program objectives, resources, responsible individuals, and participating activities and organizations.

C. Preliminary work was begun for the development of a five-year plan for Frederick Cancer Research Center for the period covered by fiscal years 1978-1982. The plan will include overall objectives of the research program, description of research or other research-related activities to be conducted during the five-year period for each major area of research projections of funds and manpower facilities required for each major area of research.

D. Under the auspices of the NCAB Subcommittee on Centers, OPPA staff developed and field tested for the Division of Cancer Research, Resources and Centers the methods and survey instrument used in the NCI Cancer Centers Evaluation Project, participated in the resultant evaluation conferences, and site visits, and continue to provide support for the analysis and evaluation of the results. In this process, SPB coordinated the participation of over 100 representatives of the biomedical community in a Delphi survey to develop, by consensus, the evaluation criteria.

PROGRAM ANALYSIS AND FORMULATION BRANCH

This Branch is concerned primarily with substantive scientific matters in cancer research and related activities. It prepares position papers on scientific issues and provides guidelines and procedures for the review, analysis and implementation of programs of the National Cancer Institute and National Cancer Plan. Members of this Branch participate in discussions, collaborate with the Systems Planning Branch, and prepare reports, position papers, and other analytic documents relating to the progress toward major objectives of the NCPP and on other identified needs of the Institute. These include analyses of current national programs, preparation of recommendations and options for initiation of major program modifications and the formulation and development of outlines for new programs.

The members of this Branch provide assistance to the Director, NCI, the Division Directors and Program Directors in matters relating to research planning, and program formulation as described, and to respond to unique needs of the different Divisions. Some examples include: the development of approaches, models and guidelines for formulating new research programs and for amending existing ones; responding to queries by extramural scientists concerning matters relating to the National Cancer Program that are referred to this Branch. It also maintains liaison with individuals and research groups outside the NCI on matters relevant to cancer research.

I. National Cancer Program Plan

During the past year the PAFB has been engaged principally in activities concerned with the National Cancer Program and related research projects supported by the NCP-NCI. These include:

A. Analysis of FY 75 contract and grant-supported projects of the National Cancer Institute with respect to the distribution of activities among the various areas of cancer research and the extent of coverage of the National Cancer Program Plan (Project Areas). The traditional (R01) grants and contracts are being analyzed under a contract with the Smithsonian Science Information Exchange. Cancer Center grants, R10, R18 and R26 grants are being analyzed by PAFB.

B. Under a contract the TRW Systems Group is completing a computerized data base of scientific and administrative information concerning NCP Project Areas, and FY 75 grants and contracts. TRW has also developed computer programs to interrogate these data bases to allow analyses of the scientific content of projects and their association with NCP Project Areas. The programs and data bases have been successfully used to produce numerous tables, data and reports specified by this Branch, e.g., research coverage in different areas of cancer, NCP Project Areas and center grants. TRW also conducted a pilot study to determine whether the Airlie House and Tyson's Corner Project Area recommendations could be matched by the computer. It was concluded that this was not possible.

C. Modification of the Project Analysis Form used to categorize the research supported in FY 75 for analysis of FY 76 or FY 77 grants and contracts.

D. Under contract Dr. Judith Swazey, Boston University, is progressing with the study of the contribution of categorical biomedical research to basic science knowledge.

E. Establishment and operation of a mechanism to avoid project duplication by proposed RFP and CREG announcements. All newly proposed projects are currently being reviewed and analyzed prior to publication or advertisement and reports are issued to the responsible individuals indicating the presence or absence of any recognized duplication.

F. A users manual to accompany the full NCP Scientific Analysis Report was developed. This manual provides the prospective user with general information on the procedures used in the analysis, the procedures to follow for obtaining information from the System.

II. Publications

A paper entitled, "Isonucleolusosis in Cell Cultures of Human Meningiomas" by Drs. H. Zankl and R. Love is published in the March issue of Cancer Research. Vol. 36: 1074-1076, 1976.

SYSTEMS PLANNING BRANCH

This Branch is responsible for the development and application of systems planning techniques to cancer research and cancer control activities; providing direct support for National Cancer Program planning, department level planning, and individual program planning. The Branch also provides general planning consultation services to various program areas within the National Cancer Institute and other institutions and groups participating in the National Cancer Program. In carrying out these responsibilities, the Branch staff participates as members of planning teams organized to develop individual program plans; works directly with program and administrative personnel in the development of operational plans; maintains liaison with program personnel; provides periodic consultation and direct efforts, as requested by program leaders, to revise and update both program and operations plans; provides education and training to program staff in the use of systems techniques; works closely with the financial management staff during the budget preparation cycle to correlate budget preparation with existing plans.

Specific activities engaged in by the Branch during the past year are described in the paragraphs that follow:

I. National Cancer Program Planning Effort

A. Coordinated the preparation of the annual five-year National Cancer Plan for the five-year period FY 77 through FY 81 for submission to the President as required by law.

B. Developed a computerized tool to project and display in a variety of formats NCI funding levels according to program, organization, and traditional budget categories. This capability was utilized to arrive at the five-year projections for the 1976 NCI Annual Plan.

C. A series of conferences to update the NCP scientific recommendations was held in 1973. The results of these conferences have been documented and work undertaken to assess the impact of these revised recommendations on program content and future plans. Much of this effort has focused on enlisting the participation of NCI scientific staff with program responsibility in the process of formulating an updated program/strategy based on revised scientific recommendations.

D. A report for FY 75 was prepared as a detailed presentation of non-NCI expenditures for cancer research and control-related efforts by NIH, DHEW, other Federal and the private-voluntary sector. This document was provided to NCI Executive Committee members for their use and also supported NCP planning estimates for required, annual reporting. The process of meeting both NCP management needs and mandated requirements continues to be evaluated to assure adequate reporting with reasonable costs.

E. Position papers were prepared for the Executive Committee retreat at Belmont on the following subjects:

- Internal program coordination among divisions and individual projects and project managers.
- External program coordination among Federal agencies, local government agencies, civic and private organizations and institutions participating in the National Cancer Program.
- The planning, program review and budget resources allocation implications of the program structure concept.

II. Support of Department Level Planning

As the focal point for the preparation of NCI material required for Department level planning, the Branch coordinated the NCI/DHEW Forward Planning activities and the NCI Evaluation Planning effort.

III. Research and Cancer Control Program Planning

In the preparation of specific research and control program plans, the Branch provided planning assistance and support to the following individual programs in NCI:

A. Breast Cancer Program - Division of Cancer Biology and Diagnosis

The Branch provides support to the Breast Cancer Task Force on an as needed basis. A staff member serves on the task force steering committee and participates in program reviews and project relevance reviews.

B. Division of Cancer Research Resources and Centers

The Branch provides support to the Prostate Cancer Project and the Bladder Cancer Project.

1. For the Prostate Cancer Project, assistance is provided to the project office at Roswell Park Memorial Hospital in preparing updated program planning charts for use in program relevance review and progress monitoring.
2. The Bladder Cancer Project is currently engaged in a major program progress review after four years of operation to accomplish two purposes: (1) review the current state of disease

management and relevant research in bladder cancer, and (2) develop a plan for continued activities of the Bladder Cancer Project. The Branch is providing analytic assistance in developing a description of the natural history of the disease to determine risk factors, alternative intervention opportunities and relevance criteria and priorities. The Branch is also providing planning assistance in developing a plan for future Bladder project activities.

C. Office of Cancer Communications

This office has been designated by the Director as a point of contact for NCI information and communications service coordination. Systems Planning Branch provided assistance to OCC in the development of national strategies for public information services and in the planning of numerous projects.

D. Division of Cancer Control and Rehabilitation

Provided assistance to the Division of Cancer Control and Rehabilitation, Community-Based Cancer Control Program in developing planning and evaluation concepts and approaches.

Provided assistance to DCCR in the further development and formulation of the Cancer Control Objectives and Approaches of the National Cancer Plan - based on recommendations obtained at various planning conferences during FY 75/76.

E. Cancer Treatment Program

Provided planning assistance and documentation support to the Division of Cancer Treatment for the preparation of the "Working Document of Cancer Treatment," submitted to the NCAB and the DCT Board of Scientific Counselors as a report of both the current status and future directions of treatment research in the National Cancer Program.

In both the areas of development and application of planning and analytic techniques, the Branch engaged in the following activities:

A. Conducted analyses of facilities and manpower requirements in support of the NCI Construction and Manpower Development Programs for the Division of Cancer Research Resources and Centers.

B. Developed projections of NCI staffing requirements to support the NCP for the Management Policy Branch, OD.

C. Developed the Strategic Planning Data Base, a computerized system available via terminals on the NIH Computer System for direct access to the informational content of the current National Cancer Program Plan scientific recommendations made by representatives of the biomedical scientific community at the 1973 National Cancer

Program Planning Conferences (NCPPC Reports). The Strategic Plan Data Base provides the capability to retrieve information on the scientific content of the NCP recommendations (Tyson's Corner) including an audit trail to earlier NCP recommendations (Airlie House). Technical Indices to the NCPPC Reports have been prepared (see publications).

D. Provided assistance to the Committee for Radiation Oncology Studies (CROS) in the development and preparation of the "Research Plan for Radiation Oncology" (to be published as a supplement in Cancer, April 1976).

E. Prepared the "Digest of Scientific Recommendations--Radiation Oncology," a National Cancer Program Plan document containing both abstracts of the CROS Plan and the relevant scientific recommendations of the NCPP Reports for use in planning research in major areas of radiation oncology (see publications).

IV. Management Information System (MIS)

Information systems have been developed for several divisions of the NCI. These systems contain information both in detail sufficient for the division operations, and in summarized form for the OD uses. It appears that such mechanisms, when available throughout the NCI, will provide an additional tool for the analysis of NCI programs across divisional lines.

A. A contractor was selected for the Phase II development of the MIS. Ten subsystems are on-line or near operational status.

B. Mitre Corporation delivered a final report entitled, "Improvement of Management Information for the Office of the Director, National Cancer Institute." In addition to identifying the major information needs of OD-level management, the report will assist the Project Office in developing an overall design for an effective but minimal management information system and to provide a basis for establishing developing priorities.

C. One of the conditions of the original clearance and approval for the MIS, by the DHEW and NIH, was the injunction that the NCI system being developed was to serve as a prototype for other B/I/D's. The various groups participating in the MIS program (e.g., NHLI, NIAID, DCRT, NIH, NINCDS) have been kept informed both formally and informally, and the MIS Project Office has worked closely with a number of institutes in the exchange of information, ideas and capabilities. The same policy on exchange of capabilities is followed within NCI, that is prototype systems are implemented in one area then transferred and adapted to others. For example, divisional information systems have been developed for DCCR and two program areas in DCCP: Carcinogenesis and Viral Oncology. These systems have been developed with close interaction between program area staff and representatives of the Research Contracts Branch serving the program areas. The goal of these systems is to be able to provide users both administrative and scientific data across organizational boundaries without regard to the mechanism of funding.

V. Presentations and Publications

The MIS Project Office has participated in or provided presentations on the activities sponsored by this office to a number of groups within the NIH during the past year.

NCP/MIS Project Office: Catalog of Services. November 17, 1975.

An Analysis of Mid-Range Resources Requirements for the National Cancer Program, NIH Publication.

1975 National Cancer Program Annual Plan for FY 1977-81.

National Cancer Program Technical Indices:

Research Objectives	(NCI Pub.	No.	NCP)	TI-GR-75
Objective One	"	"	"	TI-R1-75
Objective Two	"	"	"	TI-R2-75
Objective Three	"	"	"	TI-R3-75
Objective Four	"	"	"	TI-R4-75
Objective Five	"	"	"	TI-R5-75
Objective Six	"	"	"	TI-R6-75
Objective Seven	"	"	"	TI-R7-75
Radiation Oncology	"	"	"	TI-P1-76

Digest of Scientific Recommendations: Radiation Oncology, NCI publication No. (NCP) TD-P1-76; April 1976.

CONTRACT NARRATIVE
OFFICE OF THE ASSOCIATE DIRECTOR FOR PROGRAM PLANNING AND ANALYSIS, NCI

FY 1976

CONTRACTOR: Boston University Medical Center (Contract #NIH-N01-CO-55315)

TITLE: A Study of the Contributions of Categorical Research to Basic Science Research and Knowledge

CONTRACTOR'S PROJECT DIRECTOR: Dr. Judith Swazey

PROJECT OFFICER: Dr. Abraham Cantarow

MAJOR ACCOMPLISHMENTS: First drafts of several chapters of the projected work have been completed and reviewed by outside consultants, with suggestions for changes, which will be made. First drafts of remaining sections are under way and the prospects seem good for production of a satisfactory document under the terms of the present contract.

SIGNIFICANCE TO THE NATIONAL CANCER PROGRAM: It is anticipated that this document will provide information to counter certain statements made in opposition to the concentration of effort on the control of a particular disease, cancer. It is claimed that this is at the expense of support of basic research, upon which progress toward control of disease must ultimately depend.

PROPOSED COURSE: Continue work on present basis

DATE CONTRACT INITIATED: June 30, 1975

CURRENT CONTRACT LEVEL: $77,166.58

CONTRACT NARRATIVE
OFFICE OF THE ASSOCIATE DIRECTOR FOR PROGRAM PLANNING AND ANALYSIS, NCI

FY 1976

CONTRACTOR: Smithsonian Science Information Exchange, Inc. (Contract #NIH-NO1-CO-55196)

TITLE: NCP Analysis of Subject Content of Fiscal '75 Grants and Contracts Awarded by the National Cancer Institute

CONTRACTOR'S PROJECT DIRECTOR: Dr. David F. Hersey

PROJECT OFFICER: Dr. Robert Love

OBJECTIVE: To analyze the scientific content of Fiscal '75 grants and contracts awarded by NCI and transmit analysis to the TRW Systems Group, Inc., for storage in the computer.

MAJOR ACCOMPLISHMENTS: Over a six month period the SSIE personnel were trained in the process of analysis of grants. There was, throughout the year, a constant turnover of personnel, and it was not possible for SSIE to achieve the quality of analysis that met the standards of the PAFB which is now proceeding with its own analysis of the grants and contracts.

SIGNIFICANCE TO THE NATIONAL CANCER PROGRAM: The contract was implemented to determine whether or not it was possible to have scientific analysis of NCI projects performed under contract. The results have demonstrated that this is neither an effective nor efficient approach.

PROPOSED COURSE: FY '75 grants and contracts are being analyzed by PAFB. In the future all analysis of grants and contracts will be analyzed in-house.

DATE CONTRACT INITIATED: June 12, 1975

CURRENT CONTRACT LEVEL: $135,403

CONTRACT NARRATIVE
OFFICE OF THE ASSOCIATE DIRECTOR FOR
PROGRAM PLANNING AND ANALYSIS, NCI

FY 1976

CONTRACTOR: TRW Systems Group, Inc. (Contract #N01-CO-55420)

TITLE: Phase II Development of an NCP/NCI Management Information System

CONTRACTOR'S PROJECT DIRECTOR: Gerald E. Stock

PROJECT OFFICER: Barbara R. Murray

OBJECTIVES: To provide analysis, design, programming, and evaluation services as well as systems support to the NCP/MIS Project Office. To develop subsystems, including all standard documentation and to provide operational and training support, where appropriate, to subsystem users.

MAJOR ACCOMPLISHMENTS: TRW produced a number of reports and manuals required for orderly management of the project and to assist the Project Office. These included: Task Monitors' Handbook, Programming Standards, Procedures for Producing a Data Element Dictionary, and a suggested method for carrying out configuration management. Programming and analysis support were provided to DCT and FMB. Three subcontractors were participants during the present contract period. Sigma Data Corporation carried out modifications to assist the Contracts Management System in handling Transitional Quarter Data. JRB Associates designed and developed Divisional Information Systems for DCCR as well as the Carcinogenesis and Viral Oncology areas of DCCP. The University of Pennsylvania is carrying out a study to assess the degree to which a chemical information system developed for DCT can be transferred to DCCP.

SIGNIFICANCE TO THE NATIONAL CANCER PROGRAM: The National Cancer Act of 1971 provides for improved information systems. This contract gives NCI the analysis and programming support required to implement its Management Information System.

PROPOSED COURSE: This is the first year of a three-year, incrementally funded contract.

DATE CONTRACT INITIATED: June 30, 1975

CURRENT CONTRACT LEVEL: $861,490

CONTRACT NARRATIVE
OFFICE OF THE ASSOCIATE DIRECTOR FOR PROGRAM PLANNING AND ANALYSIS, NCI
FY 1976

CONTRACTOR: The Mitre Corporation (Contract #NIH-NCI-73-5001)

TITLE: Technical Support of the Systems Planning Branch, PPA/NCI/OD and the NCP/MIS

CONTRACTOR'S PROJECT DIRECTOR: Harry Strong

PROJECT OFFICER: Barbara Murray

OBJECTIVE: To furnish technical information systems support services to the Office of the Director, NCI. Specifically, to provide technical assistance in the coordination of NCP-MIS development activities; the design, implementation and installation of the NCP-MIS.

MAJOR ACCOMPLISHMENTS: Mitre has completed a study to identify the major information needs of the Office of the Director, NCI and delivered a report with specific recommendations. Mitre has continued to provide technical support to the Project Office by developing both specific and generalized acceptance test plans for review of software and in assistance to the Configuration Management Committee.

SIGNIFICANCE TO THE NATIONAL CANCER PROGRAM: The National Cancer Act of 1971 provides for enhanced information systems throughout the Cancer Research Community. This contract gives the NCI the coordinating and evaluation support it needs to see that the NCI-MIS is successfully implemented and serves to achieve the goals of the NCP on technically sound and realistic approaches.

PROPOSED COURSE: This contract expires December 31, 1976. The level of effort has been substantially reduced during the past year, but it is not presently possible to assess whether there will be a continuing low-level requirement.

DATE CONTRACT INITIATED: November 13, 1972.

CURRENT CONTRACT LEVEL: $183,293.

CONTRACT NARRATIVE
OFFICE OF THE ASSOCIATE DIRECTOR FOR PROGRAM PLANNING AND ANALYSIS, NCI

FY 1976

CONTRACTOR: JRB Associates (Contract #NIH-NO1-CO-55426)

TITLE: Planning and Support Services for the National Cancer Program

CONTRACTOR'S PROJECT DIRECTOR: Dr. Gary Massell

PROJECT OFFICER: Jacqueline P. Parkman

OBJECTIVE: Provide the support services necessary to assist NCI in meeeting the expanded responsibilities established by the National Cancer Act of 1971.

MAJOR ACCOMPLISHMENTS: Provides planning support services for national and individual program planning activities.

Assist in the preparation of briefing and presentation materials.

Assisted in the preparation of draft documents required to develop the National Cancer Program Plan.

Provided administrative and logistical support for planning conferences and meetings.

SIGNIFICANCE TO THE NATIONAL CANCER PROGRAM: The expanded scope and responsibilities of the National Cancer Program has imposed additional requirements for reporting, planning and analyzing alternative courses of action. This contract provides assistance in areas which could not be done in NCI.

PROPOSED COURSE: This effort will be continued.

DATE CONTRACT INITIATED: July 17, 1974.

CURRENT CONTRACT LEVEL: $2,100,000

CONTRACT NARRATIVE
OFFICE OF THE ASSOCIATE DIRECTOR FOR PROGRAM PLANNING AND ANALYSIS, NCI

FY 1976

CONTRACTOR: JRB Associates (Contract #NIH-NO1-CO-45425)

TITLE: Resources Analysis and Planning for the NCP Budgeting and Implementation Support

CONTRACTOR'S PROJECT DIRECTOR: Mr. Richard Danzeisen

PROJECT OFFICER: Mr. Michael G. Brown

OBJECTIVE: Develop and apply resources analysis and planning methodologies in support of National Cancer Program (NCP) planning and management.

MAJOR ACCOMPLISHMENTS: Update and continue development of a NCP resources data base and planning estimating relationships.

Development of a fiscal projection crosswalk model and application in support of the 1977-1981 NCP Annual Plan.

Continue development of cancer manpower projection methodologies.

Application of selected operations analysis techniques in support of individual program planning activities.

Studies to define approaches to developing priority information for NCP planning.

SIGNIFICANCE TO THE NATIONAL CANCER PROGRAM: The expanded scope and responsibilities of the NCP have imposed a need for a sound analytical basis for planning and decision-making. This contract is directed toward the development of the necessary analytical methodologies and techniques.

PROPOSED COURSE: This effort will be continued.

DATE CONTRACT INITIATED: July 1, 1974.

CURRENT CONTRACT LEVEL: $660,000

CONTRACT NARRATIVE
OFFICE OF THE ASSOCIATE DIRECTOR FOR
PROGRAM PLANNING AND ANALYSIS, NCI
FY 1976

CONTRACTOR: TRW Systems Group, Inc. (Contract #NIH-N01-CO-55318)

TITLE: National Cancer Program Analysis System

CONTRACTOR'S PROJECT DIRECTOR: Mr. Don Moen

PROJECT OFFICER: Dr. Robert Love

OBJECTIVE: To design and develop a methodology for analysis of the National Cancer Program Plan (NCPP) and of the NCI supported biomedical research activities. To provide specified reports of the analysis, plus an ad hoc query capability.

MAJOR ACCOMPLISHMENTS: The analytical methodology was translated into a computer system. The system was programmed to run on the DCRT installation. From information provided by PAFB/OPPA, a data base was created for the NCPP and for NCI grants and contracts.

The system was run to provide the specified reports for the NCI staff, and a number of ad hoc queries were processed.

The system design, program and operation were fully documented.

SIGNIFICANCE TO THE NATIONAL CANCER PROGRAM: The analytical products will provide NCI with an objective measure of the coverage of the NCPP by NCI funded activities. The Plan and Program activities can then be brought into consonance. Specific questions about the NCPP and NCI activities can be answered from the data base.

PROPOSED COURSE: To up-date the information content based on recommended changes to the NCPP, and on new contracts and grants. To continue to enhance the system's analytical capability.

DATE CONTRACT INITIATED: July 1975

CURRENT CONTRACT LEVEL: $128,500

Office of Cancer Communications

Office of the Director

National Cancer Institute

Program Activities Report, July 1, 1975--June 30, 1976

Mr. J. Paul Van Nevel, formerly Acting Associate Director for Cancer Communications, was appointed on February 29, 1976 as Associate Director for Cancer Communications. The Office consists of the Immediate Office of the Associate Director; Program Liaison Branch (Robert G. Schonfeld, Chief) and the Educational and Technical Reports Branch (William S. Gray, Chief). Under the last-named entity are the Research and Program Reports Section and the Public Inquiries Section.

Two staff members working in the Office under the terms of the Intergovernmental Personnel Act, Gay Allen and Roger Shaffer, resigned their posts. Ms. Allen returned to the University of Louisville and Mr. Shaffer went to the Comprehensive Cancer Center at the University of Colorado. Ms. Barbara Blumberg Turner, of the Johns Hopkins University, joined the staff as an IPA aide and was assigned to the Immediate Office of the Associate Director.

Two information interns were also temporarily assigned to the OCC. Ms. Mary Donovan of Boston University was placed as a writer in the Immediate Office of the Associate Director, and Mr. Robert Roseth of the University of Missouri was assigned to the Research and Program Reports Section.

During the year three other journalism school interns--Ms. Janet Raloff, Ms. Charlett Bundy and Mr. Stephen McMahon--served periods of several months in the Office as writers before their departure. A fourth intern, Ms. Letty Wunglueck, came from DHEW, and after her period of service here, departed for continuation of her internship duties in another bureau of the Department.

The Regional WATS telephone lines, already operational in many of the comprehensive cancer centers, have been backed up by a national line at NCI. The national line, located at Biospherics, Incorporated, is open on an experimental basis 24 hours a day, seven days a week, to take calls when other lines around the country are shut down. Any person in the continental United States may telephone a Center or NCI itself--free of charge--to obtain cancer information.

Communications workshops were sponsored by the OCC during the year to help coordinate the communications activities of NCI, comprehensive centers, the American Cancer Society and other institutions and organizations.

Public and Congressional Inquiries

OCC's contract with Biospherics, Incorporated, for the production of responses to written public and congressional inquiries continued during the year. "Custom" letters are those requiring individually typed and signed letters to specific individuals discussing specific problems peculiar to the inquirer. "Non-custom" letters are those requesting literature about cancer, and are answered by simply sending the correspondent one or more booklets or pamphlets accompanied by a printed "thank-you" card. When the contract was negotiated, it was expected that OCC would receive 5,000 custom and 16,000 non-custom inquiries. These figures turned out to be unrealistic, owing to the vastly increased visibility of the NCI and the NCP. For the Fiscal Year the Office responded to 46,800 custom inquiries and 10,884 non-custom. A total of 227,000 NCI publications was mailed out, and responses were prepared to 723 inquiries from members of the Congress.

Inquiries covered the whole spectrum of the cancer problem--carcinogenic substances, proposed cancer cures, appropriations and funding, research grants and contracts, and cancer incidence and mortality figures. By far the greatest increase in inquiries, however, was due to persons in search of information concerning their own illness or those of members of their families. Information in the news media that OCC was prepared to offer advice on consultations to attending physicians of cancer patients was responsible in large measure for the increased influx of requests.

By far, the greatest number of requests received by NCI came as the result of an article in the Sunday supplement, Parade (19 million circulation), written by Don Robinson and entitled "Does Your Doctor Know How to Treat Cancer?" This March 28 article was responsible for a deluge of approximately 35,000 letters and 5,000 telephone calls to the Institute. The June issue of Family Circle magazine ran an article, "The New Cancer Hot Line--And How to Use It," and the same month's issue of the Ladies Home Journal published a piece, "What You Need to Know About the New Breast Cancer Therapy Everybody's Discussing." It is too early to judge what the response to these articles will be, but since they are both publications of very large circulation, it is bound to be enormous. A rather sensational story in the widely-read weekly tabloid National Enquirer concerning methotrexate and referring to it as a "miracle" drug brought in a flood of inquiries. The National Health Federation mounted a letter-writing campaign in which it was claimed that fluoridated water is carcinogenic, and this called for an overwhelming number of responses from NCI demonstrating the falsity of this claim. Dominant themes in other inquiries were the use of clam extract as an anticancer therapy, heroin as an analgesic for terminally ill patients, theories and unproven remedies, and the Government's role in cancer research. The publication of Atlas of Cancer Mortality for U.S. Counties: 1950-1969 brought a flood of requests for the book to the Institute from professionals and the public alike. The widely publicized mastectomies of Mrs. Ford and Mrs. Rockefeller increased the interest in breast cancer among the general public to an unprecendented high, and the OCC received a great number of requests for its booklet Breast Self-Examination.

In addition to mail replies to public inquiries, approximately 13,000 telephone queries from the general public and the Congress were handled during the year. The content of these questions generally followed that of the written inquiries, with cancer-patient questions outnumbering other types.

Press Activities

OCC cooperated with other sponsoring organizations in the operation of news rooms at major scientific meetings, including the 7th International Symposium on Comparative Research on Leukemia and Related Diseases, Copenhagen, Denmark; the Conference on the Genetics of Human Cancer, Orlando, Florida; and the Annual Meetings of the American Society of Clinical Oncology and the American Association for Cancer Research, Toronto, Ontario.

OCC staff also assisted science writers in covering NCI-sponsored conferences and workshops, including the Workshop on Late Effects of Irradiation to the Head and Neck in Infancy and Childhood in Bethesda, the Second Conference on Modulation of Host Resistance in the Prevention or Treatment of Induced Neoplasia in Bethesda, the New Drug Seminar on the Nitrosoureas in Washington, D.C., and the Conference on Perinatal Carcinogenesis in Tampa, Florida. Articles from these meetings appeared in news magazines for scientists and physicians as well as in newspapers and magazines for the public.

The staff responded to approximately 900 inquiries from news reporters and issued 22 news releases and press summaries. Inquiries continued to focus on potential causes of cancer, including chemicals tested in the NCI carcinogenesis bioassay program, DES, cyclamate, smoking, estrogen drugs, and substances in drinking water or food. Related questions concerned cancer death rates for the United States during 1975 and for individual U.S. counties.

Members of the press inquired about many other topics, including new drugs for cancer therapy, possible tests for early detection, adjuvant chemotherapy for breast cancer, the role of X-ray mammography in breast cancer screening, Laetrile, cancer centers, research funding and progress, and relationships between personality characteristics and susceptibility to the development of cancer. OCC staff assisted scientists and administrators of NCI and other institutions in the National Cancer Program in providing information for the press. Articles in national magazines and local newspapers covered the whole range of cancer research and programs, from cause and prevention through diagnosis, treatment and rehabilitation.

Radio and Television

An increasing number of national and local radio and television programs interviewed NCI staff during the year. The topics covered the same broad range of interest to the written media. Institute spokesmen participated in nationally broadcast programs that included "Face the Nation," "NBC Nightly News," "Merv Griffin Show," and CBS special reports on environmental carcinogenesis. Other network programs included National Public Radio, Voice of America, and the Physicians Radio Network.

The 28-minute NCI film, "Progress Against Cancer," was shown during the year on approximately 300 local television stations across the United States to a total audience of more than 4,700,000 people. A 30-second television spot on screening for colon-rectum cancer was put into distribution by the NIH Audiovisual Branch. OCC staff cooperated with NIH and the Metropolitan Life Insurance Company in preparing a series of short radio spots on cancer.

OCC cooperated with staff of the NCI carcinogenesis bioassay program in desseminating information on findings of tests on individual chemicals for cancer-causing activity in animals to affected groups, including Federal regulatory agencies, workers, industry, environmentalists, the press, and the general public. During the year, information was distributed on chlordecone (Kepone), chloroform, trichloroethylene, and on guidelines for conducting the bioassay.

Publications and Exhibits

Twenty new and revised publications for the general public are being prepared under contract in cooperation with the American Cancer Society. This program was announced last year, and it is expected that all the publications will be ready for distribution early in fiscal 1977. The new series consists of a core publication with general information about cancer cause and prevention, detection, diagnosis and treatment; a leaflet containing salient points from the core publication, and a series of 18 pamphlets dealing with cancer of specific sites and systems: bladder, bone and connecting tissue, brain and central nervous system, breast, colon and rectum, female reproductive system, lung, head and neck, pancreas, male genito-urinary organs, skin, stomach and esophagus, leukemias, childhood leukemia, lymphomas, Hodgkin's disease, multiple myeloma, and malignant melanoma. These publications will be made available to the cancer centers and ACS divisions.

Through a distribution outlet, Supermarket Communications Systems, Inc., approximately 2 million copies of the publications "Cancer: What To Know, What To Do About It," "Progress Against Cancer of the Breast," "Progress Against Cancer of the Lung," and "Progress Against Cancer of the Skin," were replaced in 1800 supermarkets.

OCC assisted with the development, production, and staffing of a new NCI exhibit for the U.S. Bicentennial Exposition on Science and Technology held at Kennedy Space Center, Cape Canaveral, Florida, From May 29 to Labor Day, 1976. An estimated 2 million tourists were expected to visit the exposition. NCI provided 3 million copies of publications for distribution with the exhibit. OCC also sponsored a Bicentennial Exhibit in the lobby of the new DHEW Building.

The NCI Publications and Journals exhibit was renovated and shown at the American Public Health Association meeting, the National Medical Association meeting, and the D.C. Public Library, Waltha T. Daniel Branch.

The DCT exhibit, "Search for New Anticancer Drugs," was revised and renovated and shown at the Federation of American Society for Experimental Biology meeting, the American Occupational Health Association meeting, and the U.S.P.H.S. Professional Officers Association.

During the year 25 Special Communications from the Director were distributed to a wide variety of people across the country.

Support Services

OCC negotiated a support-services contract with Buffington/Mingo, a minority, small-business firm, and its two subcontractors, Porter-Novelli Associates, Incorporated, and Kappa Associated, Incorporated. The services include information clearinghouse operations, incorporating a speakers bureau, exhibits, special communication and bioassay reports, behavioral studies, concept/message testing, minority message development, and other tasks.

With regard to concept/message testing, OCC-NCI and the National High Blood Pressure Education Program/NHLI are jointly funding and administering the operation of a Working Group to develop a health education message testing system. This system would be utilized in pretesting alternative executions of pre-finished messages.

With the assistance of Kappa Systems, Incorporated, OCC has established the National Cancer Program Information Clearinghouse. Scope of the Clearinghouse is as follows:

The purpose of the NCPIC is to provide a timely information link among all the organizations of the National Cancer Program (NCP). It will be the central point at which information on resources for public, patient, and professional education will be collected from and made available to participants in the NCP. These participants include: government agencies; cancer centers; voluntary and lay organizations; educational, labor, and industrial organizations, and professional associations.

In order to serve these groups effectively, the Clearinghouse will acquire, index, and make available information covering a broad spectrum of subject areas related to the public, patient, and professional education effort of the NCP. Thus, for all sites and types of cancer, the Clearinghouse will have information for the NCP participants on: cause, detection, diagnosis, incidence, prevention, rehabilitation, risk factors, screening and treatment. The NCPIC will also have related information on: behavioral research, funding sources and procedures, and legislation.

Furthermore, the NCPIC will collect and make available information about on-going programs. It will also collect information about, as well as utilize, other data bases and information resources (e.g., CANCERLINE, MEDLINE, Clearinghouse for Mental Health Information, Smithsonian Science Information Exchange, OCC Document Reference System, etc.).

Since the Clearinghouse will function primarily as an information link, it will not act as a warehouse for documents, but will direct inquirers to the appropriate source.

Other Activities

OCC staff prepared an article for pharmacists, "What You Should Know About Drugs Vs. Cancer," published in Pharmacy Times.

Approximately 25 speeches, proclamations, special messages of congratulation to individuals or organizations were drafted for use by the President; members of Congress, the Secretary, HEW; and the Director, Deputy, and Assistant Directors and senior staff of the Institute.

The OCC prepared a number of articles and other documents for the by-line of the Director and others. These included:

1. Research and the National Cancer Program, Science, July 11, 1975.
2. The National Cancer Program, Editorial, ACS Journal for Volunteers, Cancer News, September 1975.
3. Background Document for Medicine and the Media Panel Discussion: Role of the media vis-a-vis current anti-research, anti-intellectual tendencies of the public, for presentation at Conference on Medicine and the Media: Ethical Problems in Biomedical Communications, University of Rochester Medical Center, Rochester, N.Y. October 10, 1975.
4. The Federal Role in the National Cancer Effort, address to the American Cancer Society National Conference on Gynecologic Cancer, Phila., Pa., September 19, 1975.
5. The National Cancer Program of the U.S.A. Speech for Dr. Heller, presented to the Sixth Latin American Congress on Cancerology, Acapulco, Mexico, October 25, 1975.
6. Preface, for the Annual Plan, FY 1977-1981.
7. National Cancer Program, National Cancer Institute, Accomplishments of Benefit to People Since 1971, a document prepared as a addendum to the Opening Statement, FY 1977. Completed January 23, 1976.
8. Introduction to Virus Section, Etiology of Cancer Issue of journal, Seminars in Oncology, January 1976.
9. Cancer Program Emphasizes National Coordination, for U.S. Medicine, January 15, 1976.
10. Opening Statement, FY 1977 Appropriations Hearings, January 23, 1976.
11. NCI Smoking and Health Program, for Hearings on Cigarette Smoking and Disease by the Senate Subcommittee on Health of the Committee on Labor and Public Welfare, February 19, 1976.
12. Introductory Letter to the Program of the Fourth Annual Carcinogenesis Collaborative Conference, February 23, 1976.

13. The National Cancer Program, article for Biomedicine, the European Journal of Clinical and Biological Research. Early February, 1976.

14. Cancer, article for The World Book Encyclopedia, March, 1976.

15. Spin-off Benefits of Cancer Research to Other Diseases, March 25, 1976.

16. NCI Breast Cancer Treatment Program, for Hearings on NIH Programs by the Senate Subcommittee on Health of the Committee on Labor and Public Welfare, May 4, 1976.

17. National Cancer Program, Report of the Director, 1976. To be completed in 1976.

On April 29-30, the OCC helped sponsor a conference of the Academy of Hospital Public Relations and the Americal College of Hospital Administrators. The conference, entitled "The Responsibility of Hospitals to Educate for Health," focused on the regulations and controls established under Public Law 93-641 and the implications this law will have on hospital management.

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